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Contents

3 *Public Utilities and Their Regulation in Illinois*
Robert P. Hartwig

8 *Cooperative Arrangements for the Regulation of Banking by Banks*
Charles W. Calomiris and Charles M. Kahn

14 *The Market versus the Monetary View of Money Supply Determination*
Mary A. Laschober

17 *News from BEBR*

18 *Illinois Business Statistics*

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Robert P. Hartwig

Public Utilities and Their Regulation in Illinois

Customers of Illinois' electric and natural gas utilities complain about exorbitantly high rates, citing numerous large rate increases with no perceptible improvements in service. In response to their perceived mistreatment, they have formed consumer advocacy groups such as the Citizens Utility Board (CUB) and Citizens Against Illinois Power. As a consequence, it is rare for a utility's rate increase request to go unchallenged. In several instances courts, including the state supreme court, have been persuaded to overturn rate increases.

Frustration with high rates and frequent power outages has caught the attention of many Chicago-area governments. Thirty-four suburban communities in Cook, DuPage, and Lake counties with approaching expiration dates for electrical service have banded together in order to increase their bargaining power against Commonwealth Edison. In Chicago, the Daley administration gave notice to Comm Ed that the city will terminate its current franchise agreement with the utility when it expires in 1991, but eventually decided on a one year extension of the current agreement pending the outcome of an investigation of the company.

This article will present a set of facts about public utilities, the rates they set, the regulation of those rates, and the actual costs to consumers of natural gas and electricity in Illinois. The role of market structure is also considered as are some reasons why monopolies exist at all.

As we shall see, it is difficult to place the blame for high energy costs squarely and singly on the state's utilities. It is true that most public utilities are monopolies, but with appropriate regulation they may be the least-cost and most efficient method for providing energy service. An evaluation of public utilities must also take into account the actions and rulings of the Illinois Commerce Commission (ICC), the state regulatory agency having jurisdiction over all public utilities in Illinois. Moreover, the franchise agreements that communities enter into with public utilities also play a role in determining user costs. Most franchise agreements are exclusive and often run well into the 21st century, an arrangement that encourages high rates.

How Illinois Electric Costs Rank Nationally

Table 1 compares the cost of electricity in Illinois with other midwestern states; for reference, the nation's ten most expensive and ten least expensive states are also included. States are ranked according to their cost relative to other states. The cost of electricity in Illinois is the highest among neighboring states. Costs in 1989 were 31 percent above those in Minnesota, which has the lowest rates in the region. Electricity costs in Illinois were nearly 15 percent above Michigan, which has the second highest rates in the midwest. Moreover, Illinois is one of the most expensive states in nation, ranking an abysmal 41st out of the 50 states. Illinois' high cost per kilowatt hour (kWh) is anomalous in the midwest. Such charges are more typical of costs found in the energy-starved northeast.

Illinois Utilities: Institutional Arrangements

Like most public utilities in the United States, Illinois' power generating companies have local monopolies in the sale of natural gas and electricity. As the sole supplier of those products, the utility is able to set its own price, subject to ICC approval. There is a view that such

Table 1. Electric Costs for Selected States (cents per kWh)

Midwestern States			10 Least Expensive			10 Most Expensive		
State	Cost	Ranking	State	Cost	Ranking	State	Cost	Ranking
Illinois	7.77	41	Washington	3.30	1	Illinois	7.77	41
Michigan	6.62	33	Idaho	3.69	2	Vermont	7.81	42
Missouri	6.53	32	Montana	3.83	3	Massachusetts	8.00	43
Iowa	6.46	27	Oregon	4.39	4	Rhode Island	8.16	44
Indiana	6.06	24	Wyoming	4.41	5	Hawaii	8.26	45
Ohio	5.77	16	W. Virginia	5.02	6	Connecticut	8.28	46
Wisconsin	5.60	13	Kentucky	5.19	7	New Hampshire	8.32	47
Minnesota	5.36	9	Nebraska	5.29	8	New Jersey	8.58	48
			Minnesota	5.36	9	New York	8.73	49
			Oklahoma	5.38	10	Alaska	8.85	50

Source: *The 1989 Development Report Card for the States*, The Corporation for Enterprise Development, Washington, DC.

a system leaves ratepayers feeling helpless and contributes to the perpetuation of an ages-old distrust of monopoly.

Compounding the problem is the fact that the utility's monopoly is guaranteed by local governments for extended periods. Table 2 gives the utility service expiration dates for natural gas and electricity for selected Illinois communities. Clearly, many of them have compromised their bargaining positions with gas and electric utilities. With franchise agreements lasting up to 40 years, consumers are legally bound to pay whatever set of rates emerges in the future. The increases can include costs reflecting mismanagement and poor planning, a common charge against utilities owning nuclear power plants. No community entering a franchise agreement in the 1940s could have foreseen the experience with nuclear plants of the 1970s and 1980s.

Illinois Utilities: Profiles and Prices

Illinois has nine major private suppliers of natural gas and the same number for electricity. There are also many smaller municipally owned facilities. All have exclusive contracts to provide service to communities in the state. Charts 1 and 2 show the average price of electricity and natural gas, respectively, for each of the private utilities from 1983 through 1988.

Table 2. Utility Service Expiration Dates (selected communities)

City	1980 Population	Service	Utility	Expiration Date
Chicago	6,060,387	electric	Comm Ed	1991
Champaign	58,133	electric	IP	2018
Decatur	94,081	electric	IP	2010
E. St. Louis	55,200	gas	IP	2014
Joliet	78,000	gas	NIGas	2030
Naperville	79,800	gas	NIGas	2029

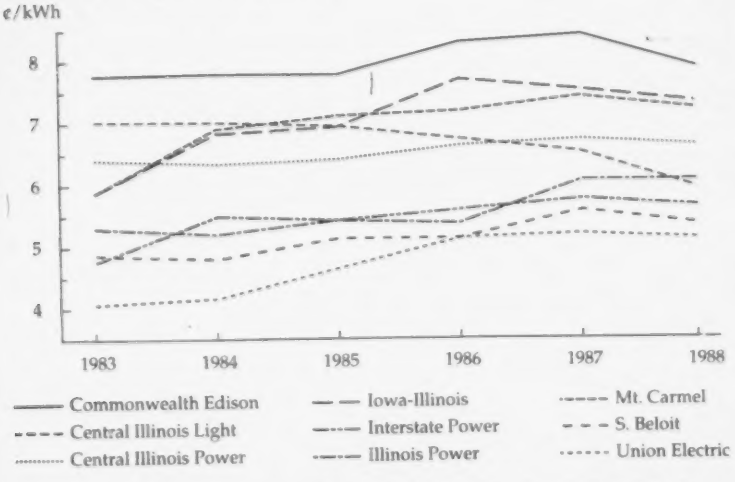
Source: *Moody's Public Utility Manual*, various issues.

Chart 1 shows that the citizens and businesses of the city and suburbs of Chicago, who are served by Commonwealth Edison, paid the highest average electrical cost in the state throughout the period. Comm Ed's 1988 rates averaged nearly 60 percent higher than those of Union Electric, based in St. Louis, Missouri, which serves about 70,000 customers in southwest Illinois and has the lowest average cost per kWh anywhere in the state. There is a view that businesses serving a large market enjoy economies of scale. If this is the case, it is difficult to understand why Commonwealth Edison's rates are so high. It provides service to millions (see *Why Monopolies Exist*, page 6). Even South Beloit, a tiny utility along the Wisconsin border that provides service to 5,500 customers, sold electricity at three-fourths the cost charged by Comm Ed.

Chart 2 details Illinois residential natural gas prices. Prices moved sharply upward for all utilities from 1980 to 1983, then remained relatively stable in 1983 and 1984. Natural gas prices have generally declined since 1985, due, it is believed, to a nationwide natural gas surplus, regulatory changes allowing gas utilities wider access to other suppliers, and the development of a spot market for gas in the midwest. Two notable exceptions to the trend are Illinois Power Company (IP) and Central Illinois Public Service Company (CIPS). CIPS was the only gas utility with increasing gas costs from 1986 to 1988. In 1980 it had the second least expensive rates, but by 1988 had the second most expensive. IP's rates rose in 1987, then declined only very slightly in 1988. By 1988 IP's rates were the highest in the state by a large margin, exceeding CIPS by 12.7 percent and Northern Illinois Gas (NIGAS) by 52.3 percent.

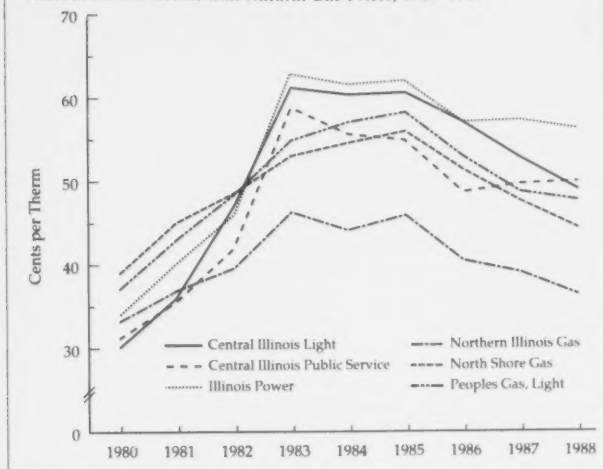
It is interesting to note that the two utilities with the most rapid gas price increases were IP and Central Illinois Light Company (CILCO), both of whom have had difficulties with power plants. Of course, it is not permissible to subsidize the costs of electric facilities with gas revenues. Even so, it is interesting to note that CILCO has recovered its costs in the canceled

Chart 1. Illinois Electric Rates by Utility



Source: *Annual Report on Public Utilities*, various issues, Illinois Commerce Commission, Springfield, IL.

Chart 2. Illinois Residential Natural Gas Prices, 1980 -1988



Source: Illinois Commerce Commission Comparative Statistics of Gas Utilities, 1980 - 1988, reprinted from *1990 Illinois Economic Outlook*.

(December 1983) Duck Creek II project, and its natural gas prices have fallen sharply since 1985. In contrast, IP has had continuing problems at its Clinton nuclear site, and its natural gas prices remain very high. Moreover, utilities in the US that provide both gas and electric service have electric costs that are, on average, 6 percent higher than electric alone and produce 15 percent less output. The issue of cross-subsidization between natural gas and electric service deserves careful study.

Regulation: The Illinois Commerce Commission

The Illinois Commerce Commission (ICC) is the government entity entrusted with regulation of the state's utilities. The ICC, created by the Illinois General Assembly for the purpose of regulating utilities and commercial transportation, describes its mission as follows: "...to continue providing for safe, efficient, and reliable public utility service within Illinois at the least cost to ratepayers, while allowing the utility the opportunity to earn a fair rate of return."

A partial history of ICC rate change rulings for major utilities (see Table 3) reveals that Illinois utilities are quite diligent in filing rate-increase requests and that their diligence is usually rewarded. For example:

- Commonwealth Edison has asked for the greatest increases, ranging from a low of $282.5 million in 1984 to a high of $660.7 in 1982. Cumulatively, the company received increases in excess of $2.5 billion in the 1980s. In April 1990, Comm Ed filed for a 17.7 percent, $982 million increase, its second largest ever. In June 1990, the Illinois Supreme Court ruled that the ICC had improperly granted a $480 million increase and ordered the refund of all money collected.
- Illinois Power, which serves 550,000 customers in the central part of the state, has been very active in seeking rate adjustments to cover building costs of the Clinton nuclear plant. Plagued by cost overruns and mechanical problems, its Clinton experience led IP to suspend dividend payments in April 1989 and to declare losses of $4.34 per share of stock for the year 1989, the first time IP has suspended dividend payments in 42 years. In April 1989, IP was successful in obtaining a $60.5 million rate increase. It had requested $256 million. What is unusual about this increase is that the ICC staff that studied the request recommended a $60 million *decrease* in rates. Voting members of the ICC, however, overruled the staff and granted an increase. IP's most recent increase was approved by the ICC in June 1990. The company received a $75 million (7.7 percent) increase, though it had requested $216 million. Since 1986, IP's rate increases have exceeded those of all

Table 3. Rate Requests and Illinois Commerce Commission Rulings (millions of dollars)

Company / Date Filed	Date Effective	Amount Requested	Amount Granted	Percent Change
Illinois Power				
NA	4/89	$256.0	$60.5	6.9%
7/89	[a]	265.0	[a]	28.2
2/90	[b]	215.0	[b]	23.0
Commonwealth Edison				
NA	2/80	NA	389.6	NA
NA	7/81	NA	503.6	NA
NA	12/82	NA	660.7	NA
10/83	7/84	4623.0	282.5	6.6
11/84	11/85	583.0	494.8	11.0
8/87	1/89	1419.9	235.0	4.7
4/90	3/91[c]	982.0	[b]	17.0
Central Illinois Light				
2/80	1/81	32.9	31.0	NA
8/81	7/82	46.2	43.6	NA
NA	12/83	NA	NA	5.3
7/87	9/87	-16.4	-16.4	-6.0
11/87	12/87	-3.0	-3.0	NA
11/87	12/87	-3.4	-3.4	NA
8/88	9/88	-9.6	-9.6	NA
Peoples Gas				
NA	1984	NA	62.0	NA
12/87	1/88	-8.9	-8.9	NA
North Shore Gas				
1/88	NA	-1.1	-1.1	NA
NA	9/84	NA	8.1	NA
12/87	1/88	NA	NA	NA
Northern Illinois Gas				
NA	11/74	NA	62.6	11.2
NA	11/78	NA	40.8	3.7
NA	1/80	NA	3.7	0.3
NA	7/82	NA	114.4	6.9
NA	1/87	NA	-7.4	NA
NA	1/88	NA	-14.3	-1.2

Source: *Moody's Public Utility Manual*, various issues, and the *Chicago Tribune*, various issues.
[a]Ruling from the ICC due in June 1990.
[b]No rule date set as of April 1990.
[c]Proposed.
NA-Not Available.

other Midwestern utilities. IP insists that its requests are justified because the ICC had earlier deemed the Clinton plant to be "100 percent used and useful," thereby allowing the full cost to be reflected in the rate base and requiring that all costs be passed along to consumers. In making the most recent rate decision, however, the ICC found the plant to be only 60.9 percent "used and useful."

Table 4. Illinois Electric Utilities Revenue per kWh by Class of Service by Company (cents) (1988)

Class of Service	CILCO	CIPS	Comm Ed	Illinois Power	Inter-St Pwr	Iowa-Ill	Mt. Carmel	South Beloit	Union Elec
Residential Sales	7.58	7.99	10.75	8.45	6.97	9.38	7.82	6.96	8.05
Large (Industrial)	4.15	4.82	5.75	4.21	4.25	4.95	6.48	4.66	3.69
Small (Commercial)	6.84	7.27	7.69	7.33	6.80	7.47	8.92	6.31	6.05
Public Street and Highway Lighting	6.53	5.68	5.99	10.04	12.65	7.40	0.00	11.00	9.60
Other Sales to Public Authorities	6.07	5.67	6.41	5.50	4.75	6.23	6.62	0.00	0.00
Sales to Railroads and Railways	0.00	0.00	6.17	0.00	0.00	0.00	0.00	0.00	0.00
Total Sales to Ultimate Customers	5.88	6.61	7.85	6.10	5.51	7.21	7.10	5.52	4.88
Sales for Resale	5.14	4.55	4.19	3.84	2.97	0.00	3.41	-0.37	0.00
Interdepartmental Sales	6.06	2.68	0.00	0.00	17.51	0.00	0.00	2.20	0.00
Total Sales of Electricity	5.88	6.53	7.78	6.01	5.50	7.21	7.01	5.33	4.88

Source: *Annual Report on Public Utilities*, 1989 edition, Illinois Commerce Commission.

•Central Illinois Light Company sought frequent rate increases in the early 1980s but has actually been reducing its rates by small amounts since 1987. Its 1981–1983 rate increases were largely to meet proposed plant construction costs. Costs would have increased further, but CILCO canceled its Duck Creek II project in 1983. The $9.6 million decrease in rates effective in 1988 reflects the completion of recovery costs associated with that project. The other decreases are the result of reduction in federal tax rates or lower capital costs.

•NIGAS has had several large rate increases since the mid 1970s, ending with a $114.4 million increase in 1982. Since 1988, NIGAS has been forced to pass along $14.3 million in federal tax savings to its customers.

•CIPS has had no increases in its retail electric rates since 1982 nor are any pending.

Why Monopolies Exist

Monopolies can arise for a variety of reasons. First, a firm might own all existing supplies of a resource or possess an exclusive patent. For example, at one time Alcoa controlled nearly all the world's known reserves of bauxite, while Xerox had exclusive patent rights to produce photocopiers, resulting in monopolized markets for each.

Second, some monopolies are sanctioned by governments. The post office is one example as is the monopoly on liquor stores in some states. Neither is a *natural monopoly*, because they exist only through government prohibition of competition.

Third, economies of scale in production can exist. This means that a firm's average cost of production falls over a very large range of output. The result is that a single firm can provide a product more cheaply than could two or more firms. Firms that operate under such conditions are called *natural monopolies*. Public utilities like Commonwealth Edison and Illinois Power are examples. If IP and Comm Ed were allowed to compete for customers, their distribution systems would overlap and become redundant, an inefficiency that would lead to higher per-unit costs.

Monopolies, if left to their own devices, will charge a price that is higher than if the market were competitive. One way to offset the high prices is for the government to set a price for the monopolist that is less that what would be charged in the absence of regulation but which still leaves the firm with a fair rate of return. The result will be greater output at lower prices, since the firm is obliged to sell more output to maintain the same level of profit. In Illinois, the approval of public utilities' prices is entrusted to the Illinois Commerce Commission. Whether or not the ICC fulfills its mission is a debatable issue.

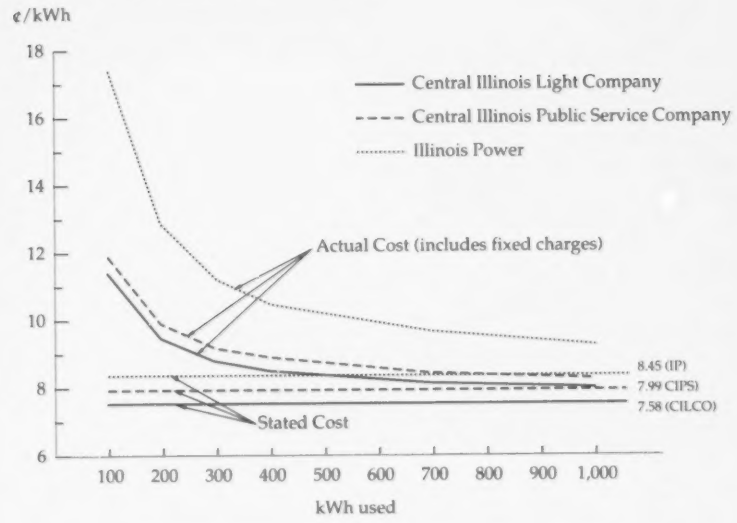
Other Costs

Comparisons between companies using averages over all rate classes can be deceiving. Utilities have complicated rate structures, with an individual customer's rates depending on the type and volume of service provided. As Table 4 shows, Commonwealth Edison's 1988 residential rates are almost three cents per kWh (38 percent) higher than the class-wide average. Illinois Power's residential electric rate exceeds its average by 40.6 percent, while its residential gas customers are charged up to 78 percent more than the average and over three times as much as some commercial and industrial customers.

Residential customers are the source most often tapped for additional revenue, but by no means the only source. Some utilities charge extremely high rates for public street and highway lighting. Examples are Interstate Power, Illinois Power, and South Beloit (Table 4). Why cities and towns are unable to obtain the same low rate as large industrial consumers is unclear, especially since the demand for street and highway lighting is highest at off-peak hours. Paradoxically, Comm Ed's price for such service is the second lowest in the state. Though at first it might appear that there could be cross-subsidization, between different classes of customer, such cross-subsidies are not permitted.

Utilities can bolster revenues through the use of facility charges, fixed fees that must be paid even if no gas or electricity is consumed. Chart 3 shows the 1988 cost per kWh for the first 100 to 1,000 kWh used for three utilities, CILCO, CIPS, and IP. Clearly, the per unit price of electricity is much higher for those using minimal amounts than for those who use substantial quantities of power. (The inclusion of local, state, federal, and regulatory taxes would raise the true cost still further.) Facility charges are designed to offset the cost of the physical distribution system (for example, such things as transmission lines) used to deliver electricity (similar charges exist for gas service, so many customers must pay both). Although the physical distribution systems for all utilities are similar, IP charges two to three times as much for the same service. According to a recent survey of public utilities by the Citizens Utility Board, Illinois Power has the highest facility charges in the United States with Commonwealth Edison coming in second. Franchise fees paid by the utility to municipal governments constitute a hidden tax that must also be borne by ratepayers. Chicago residents will pay $70 million to Comm Ed that will then be transferred to Daley administration coffers in exchange for the privilege of a single-year extension of Comm Ed service.

Chart 3. Actual vs Stated Cost per Kilowatt Hour



Source: *1989 Annual Report on Public Utilities*, Illinois Commerce Commission, Springfield, IL.

Conclusion

It is reasonably clear that Illinois electric rates are the highest in the midwest and among the highest in the nation. It is also clear that companies providing both gas and electric service tend to have higher gas prices. However, there may be a variety of reasons for this tendency. Finally, because of facilities charges, taxes, and franchise fees, the actual user cost of energy can be much higher than the stated price.

Charles W. Calomiris and
Charles M. Kahn

Cooperative Arrangements for the Regulation of Banking by Banks

Government is today the primary regulator of the US banking system. The Federal Reserve System, the Federal Deposit Insurance Corporation (FDIC), and corresponding state organizations formulate the rules by which banks compete for loans and funds. In the wake of the savings and loan crisis, many observers have begun to question whether government can police the system properly. In this article we suggest an alternative system for banking regulation: voluntary, cooperative arrangements among banks for self-policing and self-insurance.

Although it may seem odd to imagine voluntary banking leagues assuming a regulatory role, there are numerous examples of voluntary regulatory arrangements in the United States today. Many professional organizations in this country accredit members. The American Bar Association and the American Medical Association substitute for government agencies as regulators of their industries. In organized stock and futures markets, the exchanges themselves handle a major portion of the regulatory work and standard-setting.

Although self-regulation is not currently a major part of the US banking system, American banking history is full of examples of voluntary and cooperative arrangements. Bankers have organized themselves into leagues or entered into agreements with a view to specifying the rules by which banking was to be conducted. Examples of such arrangements include correspondent relationships between banks, clearing houses among banks in large cities, self-insurance schemes that encompassed whole states—and the earliest arrangement, the so-called Suffolk System of New England.

We will outline some of the common arguments for and against self-regulating banking institutions. We will consider what the nineteenth century experience can teach us about the possibilities today for self-regulation of banks.

Cooperative Regulation versus Government Regulation

Regulation of banking by government serves three distinct and potentially separable functions: First, government agencies serve as *insurers;* second, they are *policers of bank quality and safety;* and third, they function as *macroeconomic policymakers.* The first two of these roles, insuring and policing, can also be carried on through private arrangements among the banks themselves. The third role, macroeconomic policy, is properly the province of the federal government.

Government as Bank Insurer

Most insurance in the United States is carried out through the private sector. Government insurance of banks is a notable exception. The government insurance takes two forms: the deposit insurance schemes of the FDIC and similar organizations, and the lender-of-last-resort role of the Federal Reserve Bank.

The best justification for the government's insurance role actually stems from macroeconomic considerations. Widespread bank failures in this country have been associated with widespread economic disruption. Thus, widespread bank failures have costs well beyond the financial system. Moreover, when such failures are economy-wide, no private system will have the assets to make good on the resultant claims. The government has the biggest coffer of funds (and can always print more if necessary). Thus, it is the natural guarantor against economy-wide banking crises. Such guarantees build confidence. Indeed, to the extent that economy-wide crises result from lack of confidence in the banking system as a whole, the knowledge that the government will step in if necessary ensures that economy-wide disruption will not occur.

But these macroeconomic considerations do *not* justify the specific forms of insurance that have actually come into place. The government's role as a backup in the face of cataclysmic failures does not imply that government needs to be the guarantor of individual depositors in the face of isolated bank failures.

Government as Quality Police

The second role of government regulation, setting and policing standards, is also problematic. Through various (sometimes overlapping) agencies, the government formulates restrictions on the activities in which banks can engage and the types and proportions of assets that they may hold. Ancillary to this function are the tasks of inspecting, auditing, and enforcing the restrictions that have been devised.

In fact, the government's role as setter of standards for banking is, in large part, a side-effect of its role as insurer. Federal deposit insurance and the privileges of the discount window are attractive subsidies that distort the risk-taking decisions of bankers and reduce the care with which depositors choose their

banks for soundness. The structure gives banks the incentive to engage in excessively risky lending; the insurer therefore finds it necessary to take on the role of monitor and standard setter.

In this role the government faces natural constraints. When a regulator contemplates closing a troubled institution, a speedy decision is essential, because an institution's incentive to engage in risky practices increases as its problems increase. Recent experience demonstrates that regulators are likely to be slow in responding to crises, showing excessive forbearance. At the same time, government agencies by their nature tend to be inflexible in responding to innovation, restricting new and useful forms of financial arrangements by forcing conformity to the old, and possibly inappropriate, regulatory standards.

Private Insurance and Policing

In contrast, private organizations have natural advantages in policing and standard-setting. If the private organization is acting as the insurer, its incentives are to set standards that are in line with the insurance it provides. The bottom-line profitability of the insurance operation precludes excessive forbearance to troubled institutions; competition of other insuring groups forces rapid adjustment to innovation in the financial system and fosters the provision of new forms or levels of insurance as appropriate. Competition among insurance schemes provides an enriched menu of types of insurance and enables the institutions seeking insurance to provide

The Suffolk System: The Earliest Cooperative Arrangement

The earliest and most successful arrangement for bank cooperation was the Suffolk System, a network for clearing bank notes in early nineteenth century New England. Under the Suffolk System, virtually all New England banks maintained correspondent relationships with one or another of the Boston banks, which agreed to redeem peripheral banks' notes on prespecified terms. At the same time, Boston banks as a group agreed to make markets in each other's correspondent banks' notes on similar terms.

In the Suffolk System, a peripheral bank paid fees to its correspondent in Boston, usually in the form of zero interest on interbank balances, with extra charges for overdrafts. Each Boston bank was charged with regulating the circulation and monitoring the operations of its correspondents, and each Boston bank was liable to the other Boston banks for any losses they incurred in clearing the notes of its correspondents.

This privately organized system was the first clear example in US financial history of an organization in which the authority to regulate banks had been put in alignment with the incentives for maintaining standards and policing them. Boston banks undertook the risk of making markets in other banks' notes. To avoid creating perverse incentives for excessive leverage and risk-taking by correspondents, market makers kept track of correspondent banks' activities, required interbank deposits as collateral, and developed means for returning excessive issues of bank notes rapidly. The common knowledge that excessive issues were not feasible under the discipline of the Suffolk System made bank notes of members more readily accepted as a medium of payment and kept exchange rates uniformly at par.

The system began in 1819 as the scheme of Boston's Suffolk Bank. The bank agreed to make a market for peripheral banks' notes in Boston. In some cases, peripheral banks were given favored treatment in return for agreeing to deal exclusively through the Suffolk Bank. Seeking to expand its hold on the market, in 1824 the Suffolk Bank appealed to all Boston banks to finance a joint effort to return the currency of New England banks that had not agreed to its terms.

Clearly, the Suffolk Bank's intentions were not altruistic; its initial goals were to limit competition from peripheral banks and to profit from forced deposits. In its 1824 appeal to other Boston banks, it argued that Boston banks could increase their share of the loan market by forcing the contraction of the country banks. The 1824 redemption campaign prompted a "bank war" in New England in which the Suffolk Bank used the threat of random redemptions of large amounts of notes to coerce banks to join its system. In some cases, the Suffolk Bank clearly was selling "protection" against its own threats, and many country banks clearly resented the monopoly power the Suffolk Bank enjoyed.

On the other hand, the system effectively made New England a uniform currency area, with all bank notes trading at par throughout New England as early as the late 1820s. Many sanguine observers commented that the discipline brought by the Suffolk Bank increased the demand for country banks' notes, by reducing default risk and enhancing note liquidity. Some commentators argued that the increased demand for country banks' notes more than offset their expenses from membership in the system. Banking commissioners in Connecticut and Maine in fact praised the Suffolk System for its discipline and stability during the Panic of 1837.

an enriched menu of financial instruments to their depositors.

If these privately arranged insurance schemes take the form of co-insurance by banks, there are additional benefits from the relationship. There is an inherent economy in having banks monitor each other. Banks specialize in information-gathering: a bank's profitability depends on the officers' ability to make sound judgments about the credit-worthiness of borrowers and the riskiness of asset portfolios. Who could be better qualified to judge the solvency of a bank than other banks? Indeed, banks are constantly making such judgments in their day-to-day dealings with other banks. And if those banks engage in arrangements for mutual insurance, who has better incentive? The speed with which coalitions of bankers can and do act against individual member banks contrasts with the deliberateness typical of public regulation in this country.

In short, if normal deposit insurance is privatized, there will be a tendency for the standard-setting aspects of regulation to be taken on by the insurers. And given the specialized skills of banks in monitoring the soundness of portfolios of illiquid loans, the setting of standards and their monitoring will produce a natural advantage for mutual insurance schemes among banks. In such an environment, the policing of bank adherence to standards can also become the job of private agents: Where the government ensures compliance with its standards through legal sanctions, a mutual insurance scheme can ensure compliance through the threat of being dropped from the coalition.

The Remaining Role for Government

This is not to say that cooperative arrangements among banks can be *entirely* self-regulating. The government, through the courts, must remain the ultimate enforcer of such contracts as bank charters, or the insurance agreements established by cooperatives. For example, it will still be the government's role to enforce the rules for bankruptcy or for taking over a bank that is unable to meet its depositors' demands for liquidity. As in the case of any other business, in banking there will still remain a possibility of fraud, and government must provide sanctions against it. But in all of these situations, the government ceases to be an active player on the day-to-day level. Instead, the government becomes a force in the background, whose very presence makes its actual intervention unnecessary.

One aspect of regulation in which government must maintain an active role is antitrust policy. Under a system of cooperative agreements among banks, government will need to ensure the continued existence of several competing cooperatives, in order to prevent monopolization of the banking sector from robbing society of the benefits of competition.

Protecting the Public?

Politicians often argue that the real role of government in banking is "protecting the public." They make the analogy with the role of government consumer protection programs, which inspect products and certify their safety and quality. But the importance of such a role for government would be greatly reduced in markets in which private groups organize to certify quality and set standards. Coalitions of banks will have incentives to maintain their reputation by enforcing their own standards and making them publicly known. Banks would compete for customers through the quality of the insurance they provide and through their membership in the standard-setting organization most attractive to their depositors. Unlike the current regulatory situation, this would foster greater diversity, allowing depositors with diverse needs and preferences to bank with institutions conforming to different standards.

The Debate about Self-Regulating Coalitions

Given the advantage inherent in self-regulating coalitions of banks, we might have expected the advent of inter-bank agreements and institutions to meet with general support. In fact, nineteenth century observers of cooperative self-regulatory banking arrangements were sharply divided in their views of the effectiveness of these relationships. Some observers took a sanguine view, emphasizing the stability and efficiency of these arrangements. Others took a jaundiced view, arguing that they were primarily coercive and exploitive. According to the jaundiced view, the profitability of banking coalitions derived from their ability to limit supply and engage in monopoly pricing. Any gains were at the expense of the public as a whole and accrued in particular to the large banks in the cooperative arrangement at the expense of the smaller banks.

The opinion of the public at large was also divided. Many of the dramatic instances of regulatory changes in nineteenth century banking were fueled by the jaundiced view of cooperative arrangements among banks. For many champions of federal government intervention into the banking system, the primary goal was the elimination of the power of city banks through their clearing houses, their correspondent relations, and their concentration of reserves.

The sanguine and jaundiced views of bank coalitions were well represented in the qualitative evidence collected by contemporary accounts of the Suffolk System. Observers have agreed that the system was effective in creating an area of uniform currency throughout New England and in promoting stable banking thanks to the disciplinary role of the Boston banks. They have disagreed about whether the benefits of the system went exclusively to the city banks or were

shared by country banks and the public at large.

In order to go beyond these qualitative assertions about the performance of the Suffolk System, we have gathered evidence comparing the performance of the banks of the Suffolk System with banks in nearby states. Our evidence derives from two sources: Congressional documents provide information on the balance sheets of state banks as based on the records of state regulators; and various bank note "reporters" are the source for discount rates on notes.

The evidence of the note discounts indicates that the Suffolk

Other Cooperative Arrangements

Clearing Houses

The New York Clearing House was founded in 1853 to facilitate check clearing among New York City banks. It soon developed features for co-insurance, providing for members to make markets in each other's liabilities and to pool resources in response to financial panics. During times of financial disturbance, members of the clearing house continued to clear checks, to assist each other through loans, and even to issue joint liabilities. These forms of co-insurance were made possible by the fact that they were aligned with the individual banks' incentives. The procedures were combined with substantial group authority to regulate behavior of individual banks, including reserve requirements, portfolio guidelines, and other restrictions on banking practices. Because membership in the coalition was valuable and because banks had an economic interest in enforcing regulations, the threat of expulsion for violations was a powerful and most credible disciplinary device.

Clearing houses developed in other major northern cities during the 1850s (Boston, Philadelphia, and Baltimore) and spread to cities throughout the country after the Civil War. But these coalitions were typically confined to banks operating in the same city. By so limiting membership, clearing houses ensured that their member banks maintained the incentives for efficient behavior, avoiding the temptation of member banks to "free ride" on the coalition. Monitoring could be accomplished easily so long as banks were not too distantly located. Furthermore, by keeping the numbers in a coalition small, the coalition ensured that member banks would continue to find it valuable to monitor one another, since the marginal benefit of monitoring a neighbor falls with the number of banks in the coalition.

State Insurance Schemes

While clearing houses are the best-known examples of coalitions of mutually regulating, co-insuring banks, they were not the only examples. In three antebellum state banking systems, Indiana, Ohio, and Iowa, state-wide coalitions of banks were created by statute. While these states' legislatures created the insurance systems, they did not run them. The law required members of the coalition to participate in the setting and enforcing of regulatory guidelines. More important, it created an incentive for banks to do so by making them mutually liable for any loss to banks' liability holders. The self-regulatory authority was granted the powers to set reserve guidelines and standards for banking practices. It also had the power to close offending banks. The number of banks was also limited in each of these states, so that the incentives to monitor were maintained.

These three midwestern co-insurance systems were extraordinarily successful. They suffered virtually no bank failures or fraud. Banking problems were detected early and corrected by the group leadership. During regional or national panics, in which suspension of convertibility was widespread, these banks typically maintained it. The performance of these three state systems is in sharp contrast to the uniform failure of government-run state bank liability insurance systems of the nineteenth century.

Informal Coordination

Finally, some banking coordination occurred in more informal ways, through ad hoc arrangements during crises. The antebellum South, with its small number of large branching banks, is the quintessential example. During the Panic of 1837, representatives of banks from all over the South met in Charleston, S.C., to agree on a plan for maintaining interbank convertibility in the face of general suspension of convertibility. Rules limiting banks' growth and activities in the interim accompanied agreements to make markets in each other's notes and deposits. Similarly, during the Panic of 1857, southern banks seem to have cooperated more effectively to pool reserves, support one another, and limit the disruptions due to suspension of convertibility.

The relative success of the South seems attributable, in part, to the greater ease of communication and monitoring in a system dominated by a relatively small number of geographically overlapping, branching banks. Unlike the many scattered unit banks of the North, southern branching banks could pool resources, monitor behavior, and reduce the transaction and information costs inherent in forming coalitions, without having to set up formal structures to do so.

System improved the acceptability of notes of *all* New England banks. The evidence from the banks' balance sheets also tends to confirm the view that the gains in efficiency from the Suffolk System were widely shared.

We find that the banks of New England were able to provide notes backed by lower levels of specie, but that the public regarded these notes as perfectly safe. Evidently public confidence in the New England banking arrangements enabled the banks to economize on holding of expensive reserves.

At the same time, the banking system had a higher penetration into the economies of the New England states than into the economies of the rest of the northeast. Apparently banks were better able to provide services for the population in the Suffolk System states; the natural conclusion is that the increased efficiency allowed the public at large to benefit from the advantages inherent in the system.

The results are not entirely rosy: There is evidence of greater disparity in the degree of banking services available in the areas of New England than in the Middle Atlantic states. Nonetheless, in absolute terms, even the least developed portions of New England were, for the most part, as well served as those in the Middle Atlantic area. In short, the preponderance of evidence supports the sanguine view of banking coalitions as beneficial to the economy as a whole.

Lessons for Current Regulatory Reform

The Problem and a Solution

In the wake of the difficulties of the savings and loan institutions, recent studies of deposit insurance funds have focused on the perverse incentives created by mispricing of deposit insurance. Insurance encourages excess risk-taking by existing banks, particularly if prior losses leave them with little capital to lose. Thus, insurance provides a potential for unscrupulous, or merely inexperienced, entrepreneurs to enter banking as a means to finance their risky enterprises. Insurance tends to remove the discipline of the market, which normally would prevent such entrepreneurs from having access to funds: Depositors of insured institutions have little incentive to discriminate between responsible and irresponsible management when deciding where to place their funds.

Nonetheless, the insurance of bank liabilities exerts a desirable stabilizing influence. Banks, more than other institutions, are vulnerable to panics induced by depositors' uncertainty. How then can we provide credible protection of the banking and payments system without creating costs associated with the incentives for excessive risk-taking? It is here that the historical success of self-regulating, co-insuring systems of banks provides a possible solution.

The critical distinction between self-regulating agreements and government-run schemes is this: Only in the self-regulating agreements were the regulations aligned with incentives for the banks to maintain and police standards. By making banks as a group bear the costs for insuring depositors—and the savings from handling insurance more effectively—we can achieve more effective regulation.

Pitfalls along the Way

There are at least three challenges to a successful application of the lessons of self-regulating bank coordination to current banking reform: First, how can we ensure that banking coalitions will not degenerate into monopolistic cartels, using their powers of coordination to reduce the competitiveness of the banking industry? Second, given preexisting regulatory arrangements and vested interests in their maintenance, is it realistic to imagine politicians dissolving current agencies and relinquishing authority to the banks? Third, are today's banks prepared for the responsibility—that is, do they have the resources to make co-insurance credible? Each of these concerns is legitimate; together they dictate important limitations on any attempt to incorporate self-regulatory features into the current system of federal deposit insurance. We will examine them in order:

- First, the problem of limited competitiveness. The record of the Suffolk System makes it clear that, while the potential for monopolization need not be an overwhelming concern, it is a legitimate one. In any new regulatory regime, the government must maintain an antitrust role, ensuring freedom of entry for new banks and competition among co-insurance arrangements. Ideally, there would arise a handful of parallel groups, each with several nationwide branching banks. So long as no group has a geographic monopoly, no alarm need be raised; but this dictates that special attention be paid to the problems of local market monopolization should the co-insurance arrangements be leagues of unit-banks.
- Second, the issue of political feasibility. It is fanciful to expect Congress all at once to scrap the existing system and replace it with nationwide, privately managed, bank groupings. Nonetheless, there are practicable steps in that direction that would reduce the costs of government deposit insurance by enlisting the assistance of banks in supervision. For example, banks could be allowed to form groups for mutual monitoring. These groups could be granted rewards in the form of reduced insurance premiums for agreeing to engage in monitoring and assessed penalties in the form of higher premiums for any failure to detect or report violations or insolvencies of banks in their group. At the very least this would provide a strong counterbalance to political encouragement of excessive forbearance by creating

Why Didn't Cooperation Extend Nationally?

If cooperative arrangements are good, it would seem that widespread cooperative arrangements would be even better. A nationwide group of branching banks would have been able to achieve substantial advantages, since the ease of coordination and greater diversification would have reduced banking fragility and financial panics. The failure to develop nationwide banking coalitions seems attributable to restrictions on branching.

Cooperative arrangements benefitted from and required mutual monitoring. There is, thus, a natural limit to the size of a cooperative arrangement.

The benefits of cooperative arrangements could not be achieved in a system composed of several thousand geographically separate unit banks. While interregional correspondent relations continued to play an important role in the national payments system, and correspondents often borrowed and lent to each other, such bilateral activity was not part of any co-insurance relation. The unique vulnerability of the US financial system and the unusual frequency and severity of banking crises in the United States testifies to the weakness of nationwide unit banking in that era as a structure for preserving system-wide stability.

an interest group whose incentive is to monitor banks and blow the whistle early on insolvent institutions. As the advantages of the system become more apparent, more substantive reforms in the direction of self-regulation might become more feasible.

• Finally, the question of banks' capacity for co-insurance. Historical studies of losses to banks during financial crises emphasize that, apart from losses attributable to mismanagement of insurance schemes, bank capital has always been large relative to aggregate bank losses. Thus, the capacity is available. Even the Great Depression may be only an apparent, not a real, exception: Large bank losses during the Great Depression may be primarily a testimony to the government's ability to destroy an economy through deflationary policy, not a measure of the inherent vulnerability of the banking system.

Suppose, however, that we conceded that in some extreme circumstances the government must stand ready to support the financial system. We would still argue that the government's proper role is as a back-up to private schemes, through a system of shared responsibility. Lesser shocks should be the responsibility of private, self-regulating groups, with the government providing stop-gap protection against systemic collapse.

How might this be arranged? The government's back-up plan could provide that co-insurance among banks would be relied upon entirely to reimburse depositors in cases in which fewer than a specified number of banks fail, but the government would share increasingly in subsequent losses. By restricting the government's role to "catastrophe coverage," adequate incentives are retained for interbank discipline of banking coalitions without risking widespread failure.

Such an explicit division of responsibility has additional advantages. Since it is likely that the government will intervene in severe crises even in the absence of an explicit commitment to do so, it will be desirable to have the commitment spelled out. This offers the best chances for limiting congressional temptations to intervene in the pursuit of an individual banker's interest but against the interest of the public at large.

Summary

Cooperative arrangements among banks are an alternative to current regulation of the banking system. Theoretically, cooperative arrangements are better able to align the incentives of the banks in the system with the regulations adopted for maintaining standards of quality. This theoretically predicted match-up was, in fact, a characteristic of nineteenth century cooperative arrangements. In particular, the Suffolk System of New England was a significantly more efficient banking arrangement than those found in neighboring states, and the benefits of the system were enjoyed by the public at large, not just by the large banks of Boston.

The lessons of the nineteenth century experience are relevant for the late twentieth century. Cooperative arrangements can and should play a role in current reforms of the institutions for deposit insurance. Encouragement of the growth of cooperative arrangements for self-regulation is both economically desirable and politically feasible. Perhaps the regulation of banking by banks is an idea whose time has come again.

Mary A. Laschober

The Market versus the Monetary View of Money Supply Determination

Wide swings in interest rates are nearly always a topic of popular conversation. However, when people talk about a rise or fall in the rate of interest, which rate are they discussing? There are many interest rates in the economy, both short- and long-term, including the Federal Funds rate, the prime lending rate, the Federal Reserve's discount rate, and yields on US Treasury securities of various maturities.

While short-term rates tend to move together, and long-term rates also tend to move together, there may be shifts in the position of the group of short-term rates compared with the group of long-term rates. Differences between the levels of short- and long-term rates reflect the riskiness of the various financial assets, the liquidity of the assets, and underlying economic conditions. Riskier assets tend to carry a higher interest rate as a premium to the buyer of the asset for assuming the risk of possibly forfeiting the original investment and/or any possible returns. Furthermore, long-term financial instruments may have a higher rate of interest than equally risky short-term assets in order to compensate the holder of the long-term asset for the foregone opportunities associated with having the funds tied up. Buyers of short-term instruments pay for the benefits of greater liquidity through the lower interest rates.

Consequently, short-term rates are sometimes above long-term rates and sometimes below them (Chart 1). In Chart 1 short-term interest rates are represented by the Federal Funds rate (the rate charged for one-day loans of available Federal Reserve balances); longer-term interest rates are represented by the yields on ten-year Treasury securities (of constant maturity).

The classical view is that movements in interest rates reflect supply and demand conditions in the economy: the interest rate is determined by savings and investment. Savings are thought to be a positive function of interest rates. Other things being equal, the higher the interest rate, the greater the flow of savings from current income. The pace of investment in plants, equipment, and inventories is thought to be a negative function of interest rates. The equilibrium interest rate emerges when the flow of savings at a given level of income just equals the flow of planned investment. According to classical theory, interest rate movements result from either changes in peoples' saving decisions or changes in firms' investment plans. Put differently, rates are determined by the thriftiness of the public and the productivity of capital, adjusted for the risk and liquidity of different assets. Money plays no role in this area of the classical system.

More recent theories of interest rate determination emphasize the monetary side of the economy. Within this context, the supply and demand for money balances influence or actually determine the equilibrium interest rate. The quantity of money demanded is thought to be a negative function of the interest rate; that is, the lower the rate, the more money balances people are willing to hold. A high rate of interest means that the cost of being liquid (holding money instead of other assets such as bonds) is great in terms of foregone interest earned. A high interest rate, therefore, acts as an inducement to hold bonds instead of money, reducing the quantity of money demanded.

The supply of money is partially determined by the Federal Reserve through its open-market operations. If the Fed wishes to increase the

Chart 1. Interest Rate Movements, August 1978 - July 1988

money supply, it can buy government securities (usually US Treasury Bills), thereby putting a greater quantity of money directly into the hands of the public and expanding the quantity of reserves in the banking system. As banks, in turn, make additional loans or purchase securities, the supply of money is increased. The Fed can also contract the money supply by selling government securities, thereby drawing reserves from the banking system.

The money market is in equilibrium when the amount of money demanded equals the amount supplied. According to this view, interest rates fluctuate in response to changes in the demand for or supply of money. Increases in the money supply tend to lower the equilibrium rate of interest, while decreases have the opposite effect.

Money and Interest Rates

Economists hold alternative views regarding the Federal Reserve's monetary actions and interest rate fluctuations. One view, characterized here as the monetary view, is that the Fed alters the money supply in order to raise or lower the interest rate to affect economic activity. A lower rate on bonds encourages greater borrowing. Presumably, increased borrowing translates into greater investment and consumption spending, thereby increasing gross national product. In this model, interest rates are a function of changes in the money supply.

Another view, characterized here as the market view, suggests that changes in the money supply are chiefly in response to short-run shifts in interest rates. In the context of the market view, actions of the Fed to moderate short-run shifts in interest rates are *not* undertaken within the framework of a countercyclical policy. Rather, they are viewed as defensive actions taken to avoid rapid, potentially unwarranted or self-reversing, price changes in government securities. The Fed moderates interest rate increases by purchasing government securities. As a by-product of limiting the rise in interest rates, the supply of money expands. In the opposite case, if interest rates are falling, the Fed would sell government securities. As a consequence of limiting the decline in interest rates, the money supply tends to fall. The upshot of all of this is that, over a long period of time, changes in the money supply tend to exhibit a positive relationship with interest rate movements (see Chart 2).

Chart 2. Relation between Yields on One-Year Treasury Securities and the Monetary Base

Based on a random sample drawn from May 1953-June 1988

Statistical Tests

A way to test the two competing views is to examine the relationship among interest rates, the money supply, and the business cycle. If the monetary view of Fed policy is correct, we would expect the money supply and interest rates to be negatively correlated. Beyond that, we would expect growth rates of monetary aggregates to change countercyclically; that is, to accelerate during recessions and to decline during economic expansions. According to the market view, we would expect the money supply to be positively correlated with movements in interest rates. Further, during contractions of the business cycle, we would expect the growth in the money supply to decrease; we would expect monetary growth to quicken during periods of economic expansion.

In order to test the market view, we can estimate an equation in an attempt to identify the overall relationship between the monetary base and two other variables—the yield on one-year US Treasury securities (at constant maturity) and the Federal Reserve's industrial production index. The monetary base (*MB*), consisting of bank reserves plus currency outside the banks, is used as a proxy for the money supply since the Fed has tighter control over changes in the monetary base. Also, changes in the monetary base do not appear to respond to future business conditions to the same degree as do broader measures of money. This reduces any spurious correlation between the money supply and asset yields, which often encompass expected future changes in output. The yield on Treasury securities (*TB*) represents an intermediate-length interest rate; the industrial production index (*IP*) measures the strength or weakness of the economy.[1]

[1] Variables are logged to reduce the tendency of economy-wide variables to increase over time. They are also first-differenced to remove autocorrelation of the error terms. The regressions use monthly time series data, from March 1959 through June 1988, obtained from Data Resources, Inc.

The results of the estimation are:

$$MB = .0053 + .0064*TB + .0114*IP.$$
$$(28.87)\quad (2.23)\qquad (.62)$$

(Note: t-statistics are reported in parentheses beneath the coefficients.) They indicate that a 1 percent increase in the Treasury securities rate over the month is matched by a 0.0064 percent increase in the monetary base. The positive relationship between the two variables, statistically significant at the 5 percent level, implies that the market view espoused here cannot be rejected. The industrial production variable, though positively related to changes in the monetary base as expected, has a coefficient that is not statistically different from zero.

We can test the monetary view, that the Fed "pushes" the interest rate in order to affect economic variables, by estimating an equation that relates Treasury security yields to the monetary base, the industrial production index, and the monthly inflation rate (*PI*). Increases in industrial production imply both increasing investment and consumer demand for output and loanable funds, thus placing upward pressure on interest rates. It is believed that increases in inflationary expectations, proxied by the rate of change in the price level over the previous month, also cause nominal interest rates to rise.

The results of this estimation are:

$$TB = -.0231 + 1.74*MB$$
$$(-3.36)\quad (1.74)$$
$$+ 1.75*IP + 2.67*PI.$$
$$(5.26)\quad (2.78)$$

They suggest that increases in the monetary base are accompanied by increases in short-term interest rates, which is not consistent with the monetary view. Rather, we would expect growth in the monetary base to lead to falling interest rates. Moreover, the coefficient of the monetary base is not statistically significant at the 5 percent level. As we would expect, changes in both industrial production and the inflation rate positively affect the nominal interest rate and are statistically significant at the 5 percent level. The results of the two equations indicate that the Fed may respond to changes in interest rates by changing the money supply in a complementary way in order to stabilize interest rates over the long term.

However, econometric models often indicate only correlation rather than causality. A further test of whether interest rates affect the money supply or whether the relationship runs in the opposite direction is provided by the Granger-test of causality. Specifically, we want to see if there is some sort of relationship between past changes in the monetary base and current changes in short-term interest rates. If there is, this provides evidence that the monetary base changes first, and these changes cause short-term interest rate movements. We also want to test the opposite case, in which changes in past values of interest rates cause the monetary base to move in a predictable way in the current period. While the results of Granger-causality tests are fairly sensitive to changes in the estimating equation, they are useful for indicating directions of relationships between variables.

The test for causality between the monetary base and interest rates has the following results:

$$TB_t = -.0002 + 4.88*MB_{t-1} + 2.19*MB_{t-2}$$
$$(-.025)\ (4.48)\qquad (1.97)$$
$$- 2.43*MB_{t+1} - 4.27*MB_{t+2}.$$
$$(-2.23)\qquad (-3.89)$$

The variables are the same as described above, where t denotes the time period. The first two variables represent a two-period distributed lag of past values of the monetary base (the lagging observations) with the form of lag weights unspecified. The second two variables represent a two-period distributed lag of future values of the monetary base (the leading observations). If *MB* affects *TB* and the causality is not reversed, the coefficients attached to the leading observations will not be statistically significant in the regression. If, however, they are significant while the coefficients attached to the lagging observations are not, we can conclude that the causality is reversed. If all coefficients are significant, the causality runs both ways; that is, both the market view and the monetary view of the relationship between the money supply and interest rates appear to hold under certain economic conditions. Since all coefficients in the equation, except the constant term, are statistically significant at the 5 percent level, it appears that the two variables are mutually dependent; that is, interest rates and the money supply affect each other.[2]

Concluding Remarks

While the various tests discussed here do not provide substantial support for either the monetary or market view, neither do they solidly reject those views. What does seem clear, however, is that any explanation of changes in interest rates requires a consideration of the market view as outlined above, as well as a host of other factors not identified in this study.

[2] Models with varying periods of lagged variables were estimated, with the two-period lag giving the best results. It is reasonable to expect that the lag between changes in interest rates and changes in the monetary base is fairly short since interest rates are quoted daily and the Federal Reserve can readily alter the monetary base through daily open-market transactions.

News from BEBR

Two Bureau of Economic Research annual publications will be published this fall. One looks forward to the coming year with forecasts for the Illinois economy; the other provides statistics of recent performance for various sectors of the Illinois economy.

Illinois Economic Outlook

The *1991 Illinois Economic Outlook* will examine various sectors of the Illinois economy to provide a general forecast for 1991. The forecast is based on the Illinois Econometric Model maintained by the Bureau. Individual articles will look at the areas of agriculture, education, health care, banking, exports, and the state's fiscal position to predict trends for the coming year. Available in mid-December, the 1991 edition may be ordered using the form below. Copies are $10.00 each ($7.50 for insitutuions).

Illinois Statistical Abstract

The *1990 Illinois Statistical Abstract* a comprehensive, up-to-date, single-source reference for economic and demographic statistical data for Illinois, will be available in early November. In addition to the 357 tables updated from the 1989 edition, the 1990 edition features several new sections: state geography, education, public utilities, imports, and exports.

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Illinois Business Statistics

A sharp increase in energy prices has sparked fears of renewed inflation. Earlier this year, food and energy prices rose in response to record cold last December. Inflationary pressures from the temporary shock had totally subsided by May (Chart 1).The Iraqi invasion of Kuwait in August is responsible for what is likely to be a sustained rise in prices for most goods and services. The August consumer price index for the North Central region (which includes Illinois) shot up at an annual rate of 14.5 percent. The Chicago index followed suit with an annualized increase of about 11 percent. Further increases are likely as higher petroleum prices make their way into other sectors of the economy. Another way of viewing higher prices is to focus on developments regarding consumer purchasing power. Chart 2 indicates that real personal income is expected to fall in the early 1990s, in part because of higher inflation but also because of the generally weak US economy. A prolonged period of inflation will exacerbate this trend unless the economy stengthens. In Illinois, a one percentage point increase in the CPI translates into a real loss of $2.4 billion in total personal income.

Forecast Statistics

Personal Income (millions of dollars, seasonally adjusted at annual rates)

	1989	1990:I	1990:II	1990:III*	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:I
Total personal income	$219,451	$228,302	$233,768	$237,671	$241,451	$245,071	$249,057	$253,077	$257,370	$261,708
Total nonfarm	159,680	164,942	168,573	171,300	173,923	176,286	179,053	181,797	184,882	187,932
Total private nonfarm	139,652	144,401	147,237	149,704	151,990	154,053	156,509	158,968	161,711	164,467
Mining	952	976	1,076	1,120	1,125	1,131	1,139	1,153	1,159	1,162
Construction	9,620	10,450	10,456	10,734	10,912	11,149	11,298	11,547	11,784	12,047
Manufacturing	33,606	33,208	34,869	34,898	34,922	34,856	35,071	35,343	35,611	35,954
Durable	21,038	20,608	21,660	21,594	21,530	21,386	21,468	21,622	21,781	22,008
Nondurable	12,569	12,600	13,209	13,304	13,391	13,470	13,603	13,721	13,829	13,946
Transp. & pub. utilities	11,648	12,043	12,308	12,524	12,662	12,783	12,919	13,056	13,214	13,364
Wholesale trade	13,321	14,002	14,082	14,396	14,637	14,880	15,152	15,364	15,634	15,902
Retail trade	14,222	14,626	14,930	15,109	15,400	15,542	15,832	15,975	16,257	16,440
Finance, ins., & real estate	13,865	13,966	13,899	14,158	14,415	14,615	14,815	15,015	15,258	15,482
Services	41,714	44,391	45,617	46,764	47,918	49,097	50,283	51,515	52,793	54,116
Government	20,028	20,540	21,336	21,596	21,933	22,233	22,544	22,829	23,171	23,465

*Forecast begins

Gross State Product (millions of dollars, seasonally adjusted at annual rates)

	1989	1990:I	1990:II*	1990:III	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:I
Total	$257,599	$265,048	$274,366	$278,518	$282,809	$286,832	$291,040	$295,560	$300,040	$304,768
Total private nonagricultural	230,216	236,885	245,453	249,262	253,201	256,896	260,763	264,917	269,037	273,386
Mining	1,618	1,659	1,385	1,438	1,455	1,426	1,395	1,385	1,355	1,320
Construction	10,947	11,892	11,887	12,077	12,230	12,412	12,641	12,857	13,070	13,275
Manufacturing	49,496	48,988	51,645	51,577	51,319	51,251	51,358	51,555	51,761	52,106
Durable	27,538	26,976	29,410	29,265	28,988	28,806	28,801	28,922	29,029	29,292
Nondurable	21,958	22,012	22,235	22,312	22,332	22,445	22,557	22,634	22,731	22,813
Transp. & pub. utilities	25,625	26,495	28,389	28,923	29,496	30,032	30,560	31,114	31,666	32,228
Wholesale trade	22,540	23,691	23,489	23,895	24,312	24,648	24,995	25,358	25,715	26,079
Retail trade	23,366	24,031	24,912	25,281	25,609	26,026	26,451	26,869	27,303	27,756
Finance, ins. & real estate	47,278	47,614	49,894	50,850	52,103	53,060	53,923	54,889	55,837	56,809
Services	49,347	52,515	53,853	55,222	56,677	58,041	59,441	60,889	62,329	63,813
Government	23,252	23,847	24,406	24,801	25,208	25,560	25,884	26,261	26,578	26,937
Agriculture	4,131	4,306	4,508	4,455	4,399	4,375	4,393	4,381	4,425	4,445

*Forecast begins

Illinois Employment Forecast (in thousands, seasonally adjusted)

	1989	1990:I	1990:II*	1990:III	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:I
Total nonfarm employment	5,179.2	5,206.0	5,214.2	5,210.0	5,211.2	5,207.4	5,195.8	5,199.7	5,203.7	5,222.4
Total private nonfarm emp.	4,441.4	4,460.7	4,461.7	4,457.6	4,458.5	4,454.5	4,441.4	4,442.6	4,449.2	4,470.0
Mining	19.8	19.5	19.9	20.3	20.3	20.7	20.4	20.2	20.4	20.6
Construction	209.7	212.7	207.4	207.2	206.3	207.1	201.7	201.0	200.4	203.4
Manufacturing	981.2	979.5	979.8	970.1	956.8	944.0	934.1	932.1	929.1	931.3
Durable	598.3	596.3	596.8	590.0	580.6	571.4	564.3	563.5	561.9	563.9
Primary metals	56.3	56.2	56.3	55.2	53.9	52.6	51.2	50.9	50.6	50.3
Fabricated metals	107.2	106.3	106.2	105.0	103.2	101.9	100.5	100.1	100.0	100.4
Nonelectrical machinery	154.2	155.3	155.3	154.0	151.6	148.8	146.6	147.8	146.6	147.9
Electrical machinery	118.4	117.8	116.7	114.9	112.9	111.2	110.9	111.0	111.6	112.5
Nondurable	383.2	383.2	383.0	380.1	376.1	372.7	369.8	368.7	367.3	367.5
Food & kindred products	90.2	90.1	89.8	88.9	88.1	87.1	85.8	84.6	83.8	83.5
Printing & publishing	112.8	112.8	112.8	111.6	109.8	108.9	108.2	107.8	107.0	106.9
Chemicals & allied prod.	61.1	61.5	61.7	61.7	61.3	60.6	60.5	60.4	60.5	60.6
Transportation & pub. utilities	304.5	306.1	306.2	306.8	306.1	306.6	306.3	306.4	306.4	307.1
Wholesale trade	374.1	375.8	377.1	377.4	378.2	378.5	377.4	376.1	376.7	377.6
Retail trade	900.7	904.3	903.3	901.7	908.0	908.0	910.0	911.7	911.9	917.1
Finance, ins. & real estate	372.4	373.1	373.1	374.3	376.4	377.0	376.6	376.3	377.8	378.4
Services	1,278.9	1,289.8	1,294.8	1,299.8	1,306.3	1,312.4	1,314.9	1,318.8	1,326.4	1,334.5
Government	737.7	745.3	752.5	752.4	752.7	752.9	754.4	757.1	754.5	752.4

*Forecast begins.

Chart 1. Consumer Price Changes (annualized monthly rates)

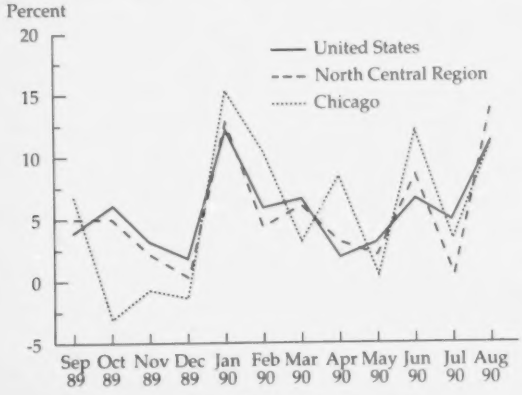
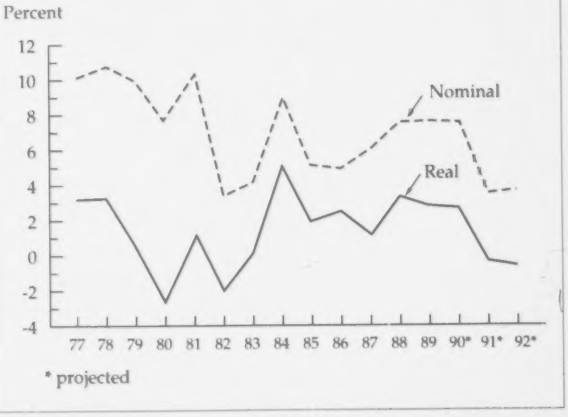


Chart 2. Growth Rate of Illinois Total Personal Income



Historical Statistics

	One Year % Change*	Aug. 1990	Jul. 1990	Jun. 1990	May 1990	Apr. 1990	Mar. 1990	Feb. 1990	One Year Ago
Building Permits									
Residential housing units	-6.11	NA	3.167	3.531	3.658	3.702	3.479	2.539	3.373
Value of residential units	-2.49	NA	$298,885	$321,515	$348,264	$346,504	$317,335	$226,860	$306,526
Value of nonresidential housing									
Industrial buildings	-1.27	NA	$41,137	$23,423	$57,706	$18,562	$18,396	$12,119	$41,667
Office, banks, and professional buildings	-30.97	NA	$23,086	$29,565	$18,932	$21,268	$55,825	$25,619	$33,443
Stores and other mercantile buildings	-7.67	NA	$39,463	$55,120	$62,213	$27,770	$54,288	$28,440	$42,740
Other	-44.23	NA	$4,672	$9,910	$7,658	$5,800	$4,589	$3,393	$8,377
Consumer price index									
United States	5.62	131.6	130.4	129.9	129.2	128.9	128.7	128	124.6
North Central US	5.25	128.4	126.9	126.9	126	125.8	125.5	124.9	122
North Central/pop. more than 1,200,000	5.18	129.9	128.6	128.6	127.4	127.3	126.9	126.4	123.5
North Central/pop. 360,000-1,200,000	5.54	127.6	125.8	125.6	125.3	124.8	124.7	124.4	120.9
North Central/pop. 50,000 to 360,000	4.67	127.8	126.2	126.5	125.9	125.6	125.3	124.5	122.1
North Central/pop. less than 50,000	5.98	124.1	122.6	122.3	121.4	121.1	120.8	119.8	117.1
Chicago	5.38	133.2	132.0	131.7	130.4	130.4	129.5	129.2	126.4
St. Louis	NA	NA	128.0	NA	126.7	NA	127.2	NA	NA

*Change is July to July for building permits, August to August for price indexes.

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Contents

3 *Illinois Bell's Rate Restructuring Plan: An Economic View*
Mary A. Laschober

7 *World Energy Consumption*
Mary A. Laschober

8 *Income Inequality among Illinois Counties: Contentment and Despair*
Roger J. Beck and William McD. Herr

12 *How Much Does Holiday Shopping Matter?*
Robert P. Hartwig

13 *Airline Service in Downstate Illinois Cities, 1970–1989*
J. Gregory Parrish

17 *News from BEBR*

18 *Illinois Business Statistics*

Illinois
Business
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Mary A. Laschober

Illinois Bell's Rate Restructuring Plan: An Economic View

In July 1990, the Illinois Bell Telephone Company extended its "pay-only-for-what-you-use" rate plan to cover a majority of its local exchange markets. A major feature of the restructuring plan involved a switch to local measured or usage-sensitive pricing, which has been in effect in northeastern Illinois for the past three years. This article considers both the efficiency and distributional aspects of the new rate plan.

Background

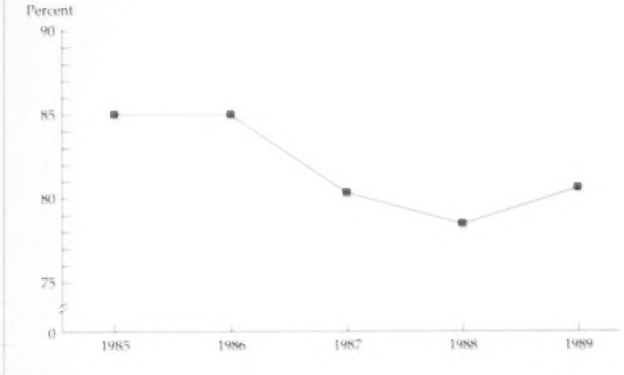
The public telecommunications network in Illinois is formed by the interconnection of 972 local exchanges. Telecommunications services between points within a single exchange are classified as local exchange services. Currently, 56 local exchange carriers provide thelecommunications services in Illinois. The largest of these is Illinois Bell, which serves most of the larger urban population centers. In 1989, it provided service to approximately four-fifths of all telephone access lines in Illinois (see Chart 1).

Illinois local exchanges are also grouped into larger geographic divisions known as Market Service Areas (MSAs). There are currently 19 MSAs in Illinois. Telecommunications services between points within separate local exchanges in the same MSA (intra-MSA) are provided chiefly by a local exchange carrier that serves as the primary toll carrier for the specific MSA. Telecommunications services between points in separate MSAs (inter-MSA) are currently provided by certified interexchange carriers such as AT&T, MCI, and US Sprint.

Local exchange carriers offer many services to subscribers, the most basic consisting of connection to the public telecommunications network via access lines to the central office switch in each exchange. Access is the most basic form of telephone service, without which other services could not exist. Costs associated with access are referred to as nontraffic-sensitive costs since they do not depend on the number of calls made by the subscriber. The other basic service offered by local exchange carriers is the ability to call other subscribers in the network. The local carrier incurs costs in providing usage in relation to the level of calling traffic over the network. Therefore, costs associated with usage are referred to as traffic-sensitive costs.

Until this past July, most Illinois Bell residential subscribers were given the option of either prepaying a single flat fee for both access and usage each month regardless of actual telephone usage (flat-rate service), or paying a flat monthly fee for access and a separate charge based on the number of calls made each month (local measured service). On November 9, 1989, the Illinois Commerce Commission (ICC) approved an Illinois Bell statewide rate restructuring plan. Except for eight communities, the single flat fee option is no longer available. Usage billing is based on the number of calls placed, as well as on the distance, duration, time, and day of each call. Residential access rates were also increased in all of Illinois Bell's service territories (except the Kaskaskia and McClure exchanges) outside of the Chicago Loop. Many of the local calling areas were expanded, and intra-MSA toll rates were reduced.

Chart 1. Illinois Bell's Access Lines as a Percent of Total Illinois Access Lines



History of Illinois' Rate Restructuring

Following the breakup of the American Telephone and Telegraph Company (AT&T) in 1984, and the ensuing competition in the long-distance telephone services market, subsidization of local telecommunications services is being phased out in Illinois as in most other states. Prior to AT&T's divestiture, an extensive system of subsidization evolved between service classes. Under this system, long-distance rates were maintained at levels above their costs in order to support low rates for local telecommunications service. In 1983, Illinois received an estimated subsidy of $7.00 per line per month from long-distance rates in order to provide long-distance connection to the local

network. The subsidy was passed on to users of local services through reduced local rates.

Moreover, revenues from business service were used to subsidize residential telephone service. Businesses have traditionally paid higher rates due to their higher demand for service; however, the cost of business service is the same as that of residential service. Illinois and other states have increasingly transferred both nontraffic and traffic-sensitive costs to the end users of the services. Consequently, although most business rates still remain above residential rates, residential rates have generally been increasing, while business rates have generally fallen over the past few years (see Table 1).

The Federal Communications Commission (FCC) has mandated the transfer of nontraffic sensitive costs to users of the service. These practices have also led to increases in local rates. To date, the FCC program has resulted in the addition of a $3.50 subscriber line charge to the local service bills of residential customers and single-line business customers. Multi-line business customers have received increases of up to $6.00. Increases in subscriber line charges have been accompanied by reductions in long-distance rates (see Chart 2). Since 1984, prices of local telephone services have been increasing, although at a decreasing pace. Intrastate toll rates have declined in recent years, after a period of rising rates. Interstate long-distance prices have consistently declined since 1984, by rather substantial amounts.

Telephone Rates and Allocative Efficiency

The move toward cost-based pricing in the telephone industry has both efficiency and distributional effects that often lead to conflicting policy goals. As will be discussed, efficient pricing of the varied telecommunications services in most cases requires that prices reflect the separate costs of producing the services. However, if the cost of a particular service is high, a price reflecting this cost may preclude lower-income consumers from purchasing the service. Policymakers or consumer groups may then attempt to obtain prices that are set below cost if the service is considered a basic need.

First, let us explore the efficiency aspects of cost-based pricing for telecommunications services. Economic theory tells us that the price consumers pay for a product or service should equal the incremental or marginal cost of providing that service. Since the price that consumers are willing to pay represents the value of the service to consumers, if the price is set higher than the marginal cost, too few of society's resources are devoted to the production of that service. A lower price that reflects the cost of the service would induce more consumers to purchase the service, thus increasing consumer welfare. Similarly, when the price is lower than the incremental cost, the value of the service to consumers is less than the cost of providing the service, so that too many resources are used. In this case, the price should be raised to cover incremental costs.

Prior to the current trend towards cost-based pricing, telephone service prices were thought to depart from costs in three significant ways. First, long-distance toll rates were set above the marginal or true costs of a long-distance call. This meant that long-distance users were paying more for long-distance service than the cost of supplying that service. Thus, the quantity demanded of long-distance telecommunications services was artificially low. Second, flat-fee local usage charges meant that the price of additional local phone calls was zero, while the cost to providers was positive. Therefore, the quantity of local phone calls demanded was greater than the efficient amount. Third, local access charges were set below the cost of providing access to the system, again inducing a level of access demand greater than the efficient level.

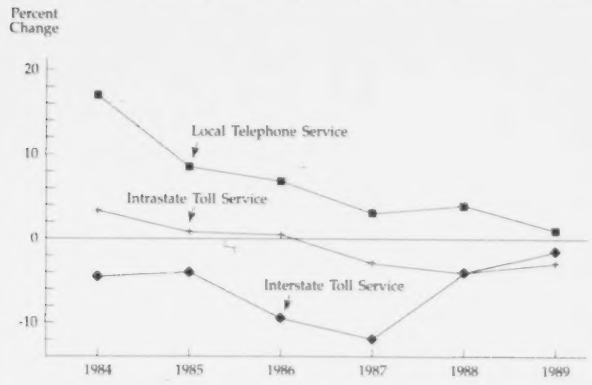
Illinois Bell's rate-restructuring plan was a major step toward implementing cost-based rates in Illinois, which should elicit a more efficient allocation of resources devoted to telephone services. A reduction in long-distance rates will encourage previous users of long-distance service to make more long-distance calls, as well as cause new users who found the previous rates too high to increase their use of this service. Higher access charges will reduce the level of demand for basic telephone service. From an efficiency viewpoint, this is a good result. Those customers who value access to a telephone less than the cost of providing access to the local exchange will no longer purchase the service. They will

Table 1. Selected Illinois Telephone Rates

	Residential, Rotary Private Line with unlimited calling		Single Line Business, touch tone, with unlimited calling		Residential Connection Charge for Rotary Services	
	Decatur	Rock Island	Decatur	Rock Island	Decatur	Rock Island
1983	7.80	8.09	22.19	24.13	33.00	33.00
1984	10.85	11.15	27.23	29.18	36.88	36.88
1985	10.85	11.15	27.23	29.18	44.50	44.50
1986	10.88	11.48	27.23	29.18	55.00	55.00
1987	10.88	11.48	27.23	29.18	55.00	55.00
1988	10.88	11.48	27.15	29.10	55.00	55.00

Source: *Telephone Rates Update*, Federal Communications Commission, Common Carrier Bureau, February 1989

Chart 2. Annual Changes in Telephone Service Price Index Levels



use their income instead to purchase goods or services that they value more than telephone service.

Furthermore, the move toward usage-sensitive pricing will encourage customers to weigh the costs of an additional telephone call against the benefits of the call. If the costs outweigh the benefits, the call will not be made, which is an efficient result. Moreover, the presence of higher rates during peak calling hours combined with discounted rates during off-peak hours will lead to the efficient rationing of telephone calls. Subscribers who place a higher value on prime time calls will pay a higher cost of placing those calls, while consumers with a lower willingness to pay will delay their calls until off-peak hours. These results are similar to those obtained from toll roads. Traffic congestion is controlled by charging for the use of the expressways. People who place a higher value on their time are willing to pay the toll and use the expressways, while people who place a lower value on their time are willing to use longer-route roads and avoid the toll.

Mandatory local measured service also includes elements that reduce efficiency and consumer welfare. First, the elimination of flat-fee service also eliminates a consumer's choice of payment methods. Prepaying a flat fee for telephone usage allows the consumer to smooth monthly payments by making a certain payment each month. Under local measured service, monthly payments will be more uncertain and varied. Second, multiusers of telephones in a single household who share payment of the phone bill will need to keep a record of individual calls. This raises the costs of monitoring telephone use. If the monitoring costs are large, individuals in the household may try to shift costs to others if they are high telephone users.

A more basic problem is that any reduction in demand for telephone access caused by an increase in access or usage charges affects not only the welfare of users leaving the network, but also the welfare of those who stay. In order to make telephone calls, there must be someone to call. It seems reasonable to suppose that the larger the number of people to call, the more valuable the telephone service. In this context, each consumer on the network would like to keep the size of the network as large as possible. Consequently, if increases in access or local usage prices decrease the level of access demand, this not only results in a loss in value to those who leave the network, but also to those who remain.

Telephone Rates and Distributional Effects

The distributional effects of a change to cost-based pricing of telecommunications services are similar to what happens whenever the price system is used to ration the consumption of goods or services. Since demand for a service is determined by a consumer's ability to pay, as well as the consumer's willingness to pay, some people who highly value telephone service may not have sufficient income to pay for the service. Therefore, higher access and usage charges may limit lower-income consumers' demand for telephone service. Low-income consumers may be forced to use the telephone only in off-peak hours or to discontinue telephone use completely. Additionally, the poor may suffer more than other consumers from higher usage rates if they make a greater number of telephone calls for informational purposes, perhaps due to the lack of money for affordable transportation.

Increases in telephone charges may also be regressive (have a greater impact on lower-income consumers) since local telephone bills, given the same number of message units used, comprise a higher proportion of a consumer's income at lower income levels. Although long-distance rates fell under the new Illinois Bell plan, if long-distance calls are a normal good (that is, demand increases as income increases), then it is likely that lower-income households will not receive smaller telephone bills under the rate restructuring. Instead, higher-income households that make numerous long-distance calls will be the beneficiaries of the new rates; this represents a redistribution of consumer welfare from lower-income to higher-income households in Illinois.

Illinois Bell contends that local measured service will extend its requirement to serve as large a market as possible. According to Illinois Bell, customers who could not afford the flat rate charges, such as people on a fixed income, or subscribers who only make a few calls a month, will see lower overall telephone bills as a result of usage-sensitive pricing. However, Illinois Bell's argument is not a valid one. Since the local measured service option was previously available to most Illinois Bell subscribers

(approximately 83 percent of their access lines), customers who found the flat fee too high could have already chosen local measured service as a means of lowering their telephone charges.

The FCC currently operates two federal programs (administered by the ICC) that are designed to preserve and extend universal telecommunications service to low-income persons. The first program is a federal/state matching program that reduces the monthly telephone bills of low-income subscribers. The ICC has been studying the feasibility of Illinois' participation in this program. The second program, referred to as "Link-Up America," provides federal funds to offset the installation and connection fees for low-income subscribers. This program, offered by local exchange carriers in Illinois beginning December 1, 1989, does not require state matching funds. These so-called "lifeline" programs are designed to help counter any decrease in demand by low-income subscribers caused by higher local rates.

By law, the ICC must monitor the level of telecommunications penetration in Illinois, defined as the percentage of households that have telecommunications service available within the home. A recent survey of local exchange carriers in Illinois conducted by the ICC indicated that penetration is in the high 80 percent to 90 percent range. Such estimates are consistent with FCC studies of Illinois penetration indicating that approximately 94 percent of all Illinois households had telephone service as of July 1989. The national rate was approximately 93 percent. Additionally, the FCC report found that telephone penetration rates rise with increases in household income. People who do not own their own home and those households receiving food stamps have lower penetration rates than other households. The study implies that low-income households have a higher price elasticity of demand for telephone services--that is, their demand for these services drop by a relatively large amount when telephone charges increase. The rise in Illinois Bell's access and usage charges may reduce Illinois' penetration rates in the future, especially among low-income households.

Losers and Gainers Under Rate Restructuring

According to Illinois Bell, more than 60 percent of their residential customers will save money under the new plan. Who are these customers? Telephone subscribers who opted to use local measured service before the restructuring plan, and who make mostly local calls, will probably face higher telephone bills. The monthly access charge for residential customers increased by $1.00 on January 1, 1990. This charge will be raised an additional $1.00 per month in January 1991 and January 1992. The increases apply to all residential telephone lines outside northeastern Illinois. Furthermore, local calls that used to average about 4 cents a call now cost an average of 4.7 cents a call. These customers' telephone bills may decrease if they reduce the number of local calls they make, or if they are able to shift a majority of calls to off-peak hours. Residential users may also shift telephone usage costs to businesses if they are able to delay calls until they get to work. Also, since some customers' local calling areas are now larger than their previous flat-rate service area, subscribers who frequently place calls to the expanded area will now pay local rates rather than long-distance rates for those calls. However, these methods for reducing monthly service charges do not seem feasible for a majority of residential customers.

Telephone subscribers who previously opted for the flat-rate plan may not receive lower telephone bills either. The increases in local access charges mentioned earlier apply to their bills as well. Flat-rate usage charges in Illinois previously ranged from $4.00 to $6.00 per month. If the flat-rate charge used to be $6.00, users who now make more than an average of 4.5 local calls a day will have larger telephone bills; if the flat rate charge previously equalled $4.00, telephone bills will increase for customers who place more than an average of 3 calls a day. Again, residential customers can reduce their telephone charges by placing fewer local calls or by shifting calls to the discounted times. These figures indicate that only low users of local telephone service will save money.

Residential subscribers who will benefit by the rate restructuring are those whose telephone bills consist of a large percentage of long-distance calls, either intra-MSA or inter-MSA. Charges for calls carried by Illinois Bell to areas outside the local calling area in Illinois that are serviced by Bell have been reduced over 50 percent. Toll calls to areas served by other Illinois local telephone companies have been reduced by an average of 25 percent. A 1987 study indicates that the largest percentage of toll calls are made within a 17 to 40 mile radius, which received a 17.2 percent discount under the new Illinois Bell intra-MSA toll rates (see Table 2). Calls within the 0 to 10 mile radius received the

Table 2. Rate Reductions vs. Message Units by Mileage Band

Mileage Band	Percent Reduction in New Peak Period IBT Intra-MSA Toll Rates	Percent of Total Illinois Intra-MSA Messages in 1987
0-10 miles	-41.6	23.8
11-16 miles	-28.3	30.9
17-40 miles	-17.2	39.5
Over 40 miles	-7.0	5.8

Sources: *Annual Report onTelecommunications*, ICC, 1989; *Bell Operating Companies' Long Distance Message Telephone Rates*, NARUC, December 31, 1987.

highest discount. Customers who frequently call within this area should experience the sharpest decline in telephone bills.

Studies have shown that long-distance usage by both residential and business customers is highly concentrated. In 1984, AT&T claimed that 73 percent of residential telephone users spent less than $10 each month on long-distance calls. Seventeen percent spent $10.00 to $25.00 each month, while only 10 percent spent more than $25.00 a month on long-distance calls. If these figures still roughly apply to intra- and inter-MSA long-distance calling, then a majority of Illinois Bell subscribers will experience little or no savings from the new rate plan.

Gainers might consist of large business subscribers who make a high percentage of all long-distance business calls. They might also be both residential and business customers who purchase custom-calling options, since the prices of most custom-calling features have been reduced. Business rates for all custom-calling services and touch-tone service have been lowered to match prices paid by residential customers. Gainers from the new rate plan, then, will likely consist of higher-income groups who have a greater demand for custom-calling and long-distance services.

Concluding Remarks

Illinois Bell stands to profit from the rate restructuring plan. If the number of subscribers who pay higher telephone bills outweighs those who pay lower bills, revenues will increase. The adoption of mandatory local measured service also allows Illinois Bell to capture revenue from any increase in telephone calls stimulated by the rise in residential and business ownership of computer modems and facsimile machines. The relative price and income elasticities of demand for installation, access, and local and long-distance services will ultimately determine the overall impact on Illinois Bell's revenue, as well as the impact on different classes and income groups of users of telephone services in Illinois.

Mary A. Laschober

World Energy Consumption

Current United States' involvement in the Persian Gulf dispute has heightened interest in energy consumption and production issues. As would be expected, the more populated and the more developed countries make up the majority of the ten highest-ranked energy consuming countries (Table 1). In 1987, the top ten countries accounted for over 72 percent of all energy consumed. In fact, the United States was responsible for almost one-quarter of total world energy consumption. On a per capita basis, however, the United States ranked only fourth in energy consumption in 1987 (Table 2). Oil rich countries such as the United Arab Emirates, Bahrain, Kuwait, and Saudi Arabia ranked very highly in terms of per capita consumption. Furthermore, these countries substantially increased their energy use over the period from 1980 to 1987. In contrast, the United States was successful in decreasing its per capita use by 8 percent over the same period, perhaps because of greater incentives to use less energy in absolute amounts, as well as economic incentives to use a given amount of energy more efficiently. However, the United States still consumed five times the amount of world per capita energy consumption in 1987.

The five countries with the lowest energy consumption are less-developed, relatively poor nations, mainly in Africa, confirming that energy consumption rises with per capita income or wealth. Although some developed countries, such as West Germany and South Africa, consume relatively small amounts of energy per capita, they still used more than the average for all countries, with 2.9 and 1.5 times world per capita consumption, respectively.

Table 1. Ten Highest-Ranked Countries in Total Energy Consumption, 1987 (Millions of Metric Tons of Coal Equivalents)

Country	1987	Percent of Total World
U.S.	2,322.9	24.1%
Soviet Union	1,867.2	19.3%
China (mainland)	800.8	8.3%
Japan	456.1	4.7%
West Germany	342.0	3.5%
United Kingdom	290.8	3.0%
Canada	256.5	2.7%
India	220.5	2.3%
France	206.9	2.1%
Italy	204.4	2.1%
Total World	9,653.6	

Table 2. Ten Highest-Ranked Countries in Per Capita Energy Consumption, 1980 and 1987 (Kilograms of Coal Equivalents)

Country	1980	1987	1980 to 1987 % Change	Ratio to World Total
United Arab Emirates	17,188	18,832	9.6%	9.8
Bahrain	12,651	14,680	16.0%	7.6
Canada	10,547	9,915	-6.0%	5.2
U.S.	10,386	9,542	-8.1%	5.0
Kuwait	5,019	9,191	83.1%	4.8
East Germany	7,276	7,891	8.5%	4.1
Netherlands	6,543	7,265	11.0%	3.8
Norway	6,423	6,782	5.6%	3.5
Soviet Union	5,549	6,634	19.6%	3.5
Saudi Arabia	2,745	6,322	130.3%	3.3
Total World	1,919	1,921	0.1%	

Roger J. Beck and
William McD. Herr

Income Inequality among Illinois Counties: Contentment and Despair

Regional disparities in per capita income provide a continuing challenge to policymakers to develop and implement strategies that will reduce the inequality. For many years inequality between regional and state average per capita income in the United States narrowed. To some, this was taken to mean that market forces in factor markets and/or public policies, though slow, were working. Recent studies indicate that the trend toward income convergence among counties and regions has been reversed. Some believe that increasing regional inequality may be associated with temporary forces related to the fortunes of specific industries such as farming and energy. Others see growing inequality associated with longer-term forces such as increasing suburbanization or the growing importance of the service industry sector.

This study focuses on the per capita income variation through time (1969–1987) among Illinois counties. The purpose is to look at three aspects of the inequality of average per capita personal income among Illinois counties: first, to document change in the inequality of average per capita income through time; second, to identify counties contributing to the observed inequality; and third, to attempt to identify some of the reasons for observed changes in income inequality. The article concludes with some implications for public policy.

Methodology and Data

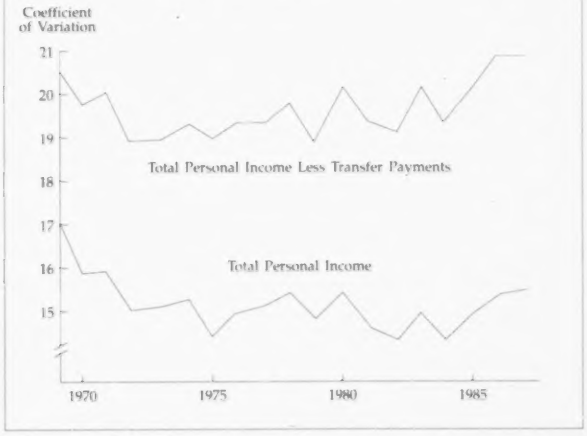
The measure of income inequality employed in this study was the coefficient of variation of county average annual per capita income. The coefficient measures the relative dispersion of average per capita income about the mean for all counties in Illinois. In this formulation the average per capita income for each county, regardless of its population, contributes equally to the state average. In order to document the change in income inequality among Illinois counties, the coefficient of variation of per capita income was computed for each year from 1969–1987. The method focuses on regional, in this case intercounty, income disparity in contrast to examining how income is distributed among the population. Thus, for example, an increasing coefficient of variation through time indicates more regional income inequality but says little about the income distribution among the state's population. The latter requires analysis of how the population is distributed among counties as well as the distribution of income among the residents of each county.

Two alternative measures of income were used: personal income and personal income less transfer payments. It was presumed that the latter measure of income would have a higher coefficient and show more year-to-year variability than would total personal income. A comparison of the two could also provide an indication of the role of transfer payments in reducing income inequality among Illinois counties. Transfer payments are those provided by governments to those to whom no wages and salaries are paid for in the current period. Included are Social Security, Medicare, Medicaid, Food Stamps, unemployment insurance, veteran's benefits, public assistance, and other programs.[1]

We did not attempt to adjust income for differences in the cost of living among counties. Even if data were available to make the analysis in real terms, we do not believe it would materially affect our conclusions. Results would change only if cost-of-living increases among counties were substantially different. Differences between low- and high-income counties might be smaller, but counties lying in either tail of the distribution would be likely to be the same, and counties moving in and out of the tails would also be likely to be similar.

[1]All data used in the study represent income estimates for local areas and counties prepared by the Bureau of Economic Analysis, US Department of Commerce.

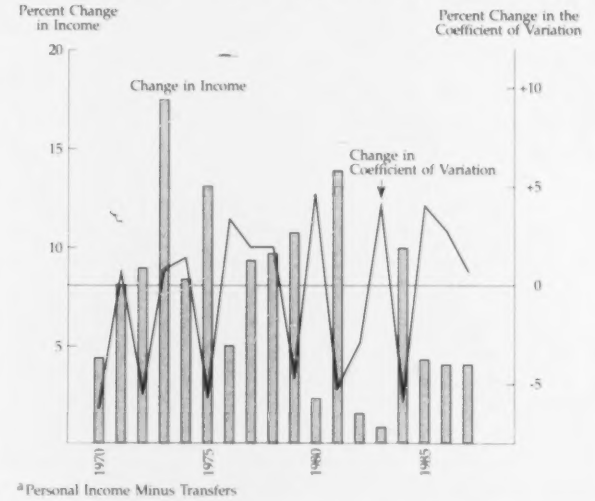
Chart 1. Coefficient of Variation of Average Per Capita Income among Illinois Counties



The second objective of identifying counties contributing to the observed inequality was accomplished by observing for each year the counties that lie outside plus or minus one standard deviation from the mean income level of all counties. Our purpose is to determine whether this group of counties represents a persistent core of high- and low-income counties or whether, over time, counties move in and out of these categories.

The third objective, which seeks to provide an understanding for the observed income inequality, is accomplished by attempting to find common characteristics of counties in each end of the income distribution and for those counties moving away from the mean.

Chart 2. Annual Percentage Change in Illinois Per Capita Income[a] Compared to the Percentage Change in the Coefficient of Variation



[a]Personal Income Minus Transfers

The Inequality of County Average Per Capita Income

The coefficient of variation of per capita income less transfer payments did not change much during the period 1969–1987. It was 20.5 in 1969, reached a low of 18.8 in 1972, and then trended upward reaching 20.8 in 1987 (Chart 1). This finding is consistent with the pattern of inequality among states and the inter-county pattern of inequality found by researchers.

The yearly coefficients of variation for average total personal income per capita were lower, indicating that transfer payments narrowed the relative gap between high- and low-income counties. On average, transfer payments lowered the standard deviation of average per capita income by ca. $140, or 10 percent. The time trend observed for the coefficient of variation of total personal income, however, differed from that for income minus transfers. The coefficient of variation for the more comprehensive measure of income was just over 17 in 1969, reached a low of 14.4 in 1975, and since then fluctuated around a level trend. Stabilization of the annual coefficient of variation is perhaps due to the increasing importance of transfer payments in total personal income. In the early 1970s transfers averaged 11-12 percent of the state's total personal income, whereas in the 1985-1987 period they averaged 18 percent. This greater importance of transfer payments reduced the coefficient of variation in more recent years relative to earlier years. While transfer payments reduced the amount of inequality, year-to-year fluctuations in the coefficients for the two income measures were virtually identical.

We note that decreases in the coefficient of variation of total income tend to occur in years when state per capita income increased (especially 1975, 1979, 1981, and 1984) and widened in years when the overall change in per capita income was negative or low (especially 1976, 1980, and 1983), Chart 2. While some of the observed association may be related to our measure of inequality, nevertheless, it appears that growing personal income is one important ingredient in reducing inter-county income inequality.

Counties Contributing to Inequality

For each of the 19 years, we identified counties whose average total per capita personal incomes were outside plus or minus one standard deviation from the state average. We observed whether counties consistently remained outside this range or whether they moved in and out of the income extremity.

There were 23 different counties having an average income of more than one standard deviation below the state average in one or more years (Table 1). Of these "low-income" counties, 10 were in this low range for at least 17 of the 19 years. These were designated "core low-income

Table 1. Number of Counties by Years in Which Their Average Per Capita Income was Outside the Range of ± One Standard Deviation of the State Average, 1969–1987.

	Number of Illinois Counties with Average Incomes Outside the Specified Range			
	Minus 1 SD		Plus 1 SD	
	No. of Counties	Percent	No. of Counties	Percent
17 years and over (Core)	10	43	7	23
6 to 15 years (Intermediate in and out)	6	26	8	27
5 years and under (In and Out)	7	30	15	50
Total	23	100	30	100

counties" in the state (Chart 3).[2] Seven counties were in the low-income status for fewer than five years and are termed "in and outers." Five of these counties (Calhoun, Henderson, Jasper, Pike, and Schuyler) have a substantial dependency on farming, and all of these counties were in the low-income group in one or more years of the early 1980s when farm fortunes sagged badly. Richland and Williamson counties fell into the low-income category for one year only, 1970 and 1975, respectively.

Six counties were in the low-income group for 6 to 16 years. Of these intermediate "in and outers," only Franklin county showed a persistent pattern of moving out of the group. Franklin was in the low-income group in most years to 1978 but since then has not reappeared. On the other hand, Union county first appeared in the low income group in 1978 and remained there through 1985. The other four counties (Clay, Cumberland, Gallatin, and Green) tend to show a pattern of being in the group in the early 1970s, the late mid-1970s, and again in the 1980s. These counties have a high dependency on agriculture, and many of these years, especially in the 1980s, correspond to poor farm income years.

There were 30 different counties having average per capita income of more than one standard deviation above the state average in one or more years of the 19-year study period. Of these "high-income" counties, seven were in the high group for at least 17 years. All of these high income counties are in or border the Chicago metropolitan area (Chart 3). Fifteen counties were in the high income status for fewer than five years. Some patterns were discernible as to when they entered and left the group. Will and Boone, both northeast counties, were in this group in the 1969–1972 period and did not reappear in subsequent years—except for Boone, which returned to the group in 1987. Tazewell and Woodford counties were in the high-income group during the late 1970s and early 1980s but have since left the group. Seven other counties made the group in one or more years prior to the mid-1970s and have not reappeared since then. Three of the counties first entered the high income group in the 1980s.

Eight counties had high incomes for 6 to 16 years. Putnam and Monroe first entered the group in 1974 and 1980, respectively, and have consistently remained there. Ford, Menard, and Peoria, on the other hand, were consistently in the group but departed between 1979–1982. The fortunes of a single industry, construction machinery and equipment, probably accounts for the change in Peoria as well as the adjacent counties of Tazewell and Woodford mentioned earlier. The three other counties (Piatt, Sangamon, and Stark) tended to rotate into the group in three different periods; early 1970s, mid-70s, and the late 80s.

Finally, we observe two counties that moved from one extreme income group to the other. Henderson was in the high income group in 1973 and 1975 but moved into the low income group in 1983. Richland was in the low income group in 1970 but moved into the high group in 1983. Increased income derived from extractive

Chart 3. Counties Consistently Outside ± One Standard Deviation from the Average Per Capita Income of All Counties

[2]Robert P. Hartwig (*Illinois Business Review*, December 1989) identified the 10 Illinois counties with the lowest average per capita personal income in each of the four years, 1984-1987. Seven counties were in this group each year. Three others appeared in the group in three of the four years. The 10 "core" low-income counties inferred from Hartwig's tabulation are the same as the 10 counties this study designates "core low income counties" based on a 19-year study period.

industries such as oil and gas have contributed to the climb from the low income-group to the high-income group.

The analysis shows that relatively more counties move into and out of the high income group than move into and out of the low group. For example, among all of the different low-income counties, over 40 percent were in the category for 17 or more years. Or, looked at the other way, less than 60 percent moved "in and out" of the group. Being in the low-income group appears to be more permanent than being in the high-income category. The economies of counties that move in and out of these income groups tend to be related to agriculture, mining, or the fortunes of a dominant manufacturing industry. Core low-income counties tend to be in southern Illinois, while core high-income counties are in the northeast.

Counties Contributing to Growth in Inequality

While the previous section identified counties contributing to the inequality of per capita income among Illinois counties, this section identifies counties that contributed to the increase in inequality as measured by county average per capita income less transfers between 1972 and 1987. We calculated the range in the standard deviation of incomes among counties that would have yielded the same coefficient of variation in 1987 as occurred in 1972, namely 18.8. We refer to this as the calculated coefficient of variation in 1987. We then observed two types of counties responsible for the increase in inequality. One group comprised those counties within ± one standard deviation in 1972 but outside the calculated range of the standard deviation in 1987. Counties meeting this criterion had either rapidly growing incomes or, at the other extreme, very slow income growth. The second group represents those counties that were outside plus or minus one standard deviation in 1972 but whose income grew faster (slower) than the mean of all counties. These counties were farther away from the calculated standard deviation in 1987. Adding together the two groups of counties, we were able to identify counties that contributed to increasing income inequality. These are called upward and downward divergent counties.

There were nearly twice the number of upward divergent counties (13) than downward divergent counties (7), Chart 4. About one-half of the upward divergent counties were outside one positive standard deviation in 1972; and because their incomes grew faster than the state average, they were further outside the calculated range in 1987. All of the counties contributing to upward divergence, except one (Monroe), were located in northern Illinois.

Among the downward divergent counties, only one (Union) had an income that was within plus or minus one standard deviation of the average state income in 1972; but because of slow income growth, its average per capita income was less than the lower calculated standard deviation in 1987. The other six counties had incomes below the lower limit in 1972; and because income growth was below the state average, they contributed further to the divergence in income inequality among Illinois counties. All of the counties contributing to the downward divergence were located at the southern tip of the state except for Fayette.

Chart 4. Counties Contributing to Increased Inequality of Income Between 1972–1987

Implications for Public Policy

Major objectives of economic development programs are to provide economic opportunities that raise incomes and sustain economic growth. This study shows that increasing income levels and providing for growth is a

complex process. For example, we found that a number of counties move in and out of the extremes of the income distribution. At the same time we found evidence that some counties seemed to remain in either tail of the income distribution more or less permanently. We were unable to adjust for differences in cost of living among Illinois counties, but we do not believe this omission materially changes our conclusion: Differences between high- and low-income counties would be reduced, but the impact on the counties moving in and out of the tails of the income distribution would likely be small.

The substantial movement of counties in and out of the tails of the income distribution, especially the upper, provide evidence that there are factors that can change the relative position of counties and regions. On the other hand, the finding of a "core" of low income counties is indicative of a long-term, continuing income problem.

Superimposed over these two quite different findings is evidence that income inequality among counties as measured by the coefficient of variation is negatively associated with changes in the growth rate of personal income in the state. Apparently, general economic growth that increases all income provides a relatively greater stimulus in low than high income counties. In the short run this may occur as labor commutes from low-income counties to counties with higher paying employment opportunities.

These findings indicate to us that a mix of policies is necessary to reduce intercounty income inequality. Some policies must be long-term in nature and targeted to core low-income counties. Others must be flexible and capable of responding to the needs of counties that are intermittently part of the low income group. Diversifying sources of income is important to counties that have moved in and out of the low income category. Finally, efforts to improve the overall growth rate of the Illinois economy cannot be overlooked. Growth, wherever it occurs, provides a stimulus for resources to move into higher return uses. In the long run, market forces may still push intercounty incomes toward more equality. However, this study, covering nearly 20 years, indicates that due to poor mobility of resources and industry trends that at times overwhelm market forces, economic development programs are a continuing necessity, especially for rural counties.

Robert P. Hartwig

How Much Does Holiday Shopping Matter?

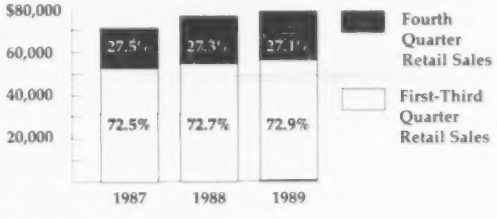
The holiday shopping season of 1990 will not soon be forgotten by consumers or retailers...or will it? Retailers bemoaned the newly developed penny-pinching of customers. They declared that disaster would befall them, claiming that forty, fifty, or sixty percent of all their sales were made in the all-too-few weeks preceding Christmas. Many say an even higher proportion of their profit is made during this period.

Are retailer's really that dependent on holiday sales? For retailers' claims to be true, the total value of everything we buy during the holiday season must be forty, fifty, or sixty percent of everything purchased throughout the year. For the vast majority of us, this is not the case.

Retail sales in Illinois illustrate this fact. The chart shows fourth quarter (October, November, and December) retail sales in recent years as a percentage of annual retail sales. It is clear that fourth quarter sales are consistently between 27 and 28 percent of the annual total. If consumers spent at a constant rate throughout the year, exactly 25 percent of all sales should occur during the fourth quarter. Hence, fourth quarter retail sales are not as gargantuan as retailers lead us to believe.

It is true that some retailers depend heavily on holiday sales, but many do not, and for this reason fourth quarter sales are only modestly above sales in the first three quarters of the year. Retail sales include much more than the common gift and seasonal items purchased during the holidays. Throughout the year, we purchase items such as groceries and gasoline. We may even purchase an automobile, a boat, or furniture. All these items are included in retail sales and tend to diminish the spike in retail sales associated with the holiday season.

Fourth Quarter Retail Sales as a Proportion of Full-Year Retail Sales (millions of dollars)



Source: *Monthly Retail Trade*, U.S. Department of Commerce

J. Gregory Parrish

Airline Service in Downstate Illinois Cities, 1970–1989

Air transportation in downstate Illinois cities has gone through extraordinary changes since 1970. The period has been characterized by both strong growth and periods of decline in boardings, as well as substantial changes in the number of airlines serving the area, the types of aircraft utilized, and the frequency of service. This article analyzes these changes, evaluates current needs, and considers the future outlook for air travel in downstate cities.

Table 1. Airline Boardings, Six Selected Major Downstate Illinois Cities, 1970-1989

Year	Total Six Cities	Bloomington-Normal	Champaign-Urbana	Decatur	Quad Cities[1]	Peoria	Springfield
1970	551,405	NA	88,804	31,574	138,440	195,233	97,354
1971	567,651	NA	93,017	31,244	146,595	193,734	103,061
1972	591,879	NA	72,532	32,908	153,098	220,510	112,831
1973	536,620	NA	71,279	27,866	120,769	224,703	92,003
1974	681,869	NA	99,003	39,644	168,310	257,087	127,825
1975	808,277	NA	102,591	40,095	180,932	251,311	130,707
1976	773,961	NA	112,822	42,538	202,681	280,843	135,077
1977	852,384	NA	127,310	47,144	245,699	301,350	130,881
1978	980,190[2]	31,522	129,922	51,590[2]	274,938[2]	335,208[2]	158,010[2]
1979	879,169	32,883	110,908	41,929	239,450	320,208	133,751
1980	785,210	25,539	97,953	40,345	208,851	293,985	118,537
1981	695,593	22,818	95,114	38,516	195,294	244,126	100,725
1982	631,386	20,135	86,165	33,014	166,663	221,177	104,232
1983	715,151	24,667	117,669	31,645	182,015	248,666	110,489
1984	776,651	29,755	151,415	35,695	180,699	270,669	108,418
1985	817,992	30,079	166,694	37,948	195,444	268,843	118,984
1986	896,965	38,722	171,429	43,670	221,813	299,326	122,005
1987	879,497	38,622	164,369	34,402	209,695	318,135	114,273
1988	876,448	46,273	167,607	38,923	208,604	307,380	107,661
1989	931,868	55,000[2]	177,979[2]	41,433	214,610	319,801	123,045
% Change 1970-89	69.0	74.5	100.4	31.2	55.0	63.8	26.4

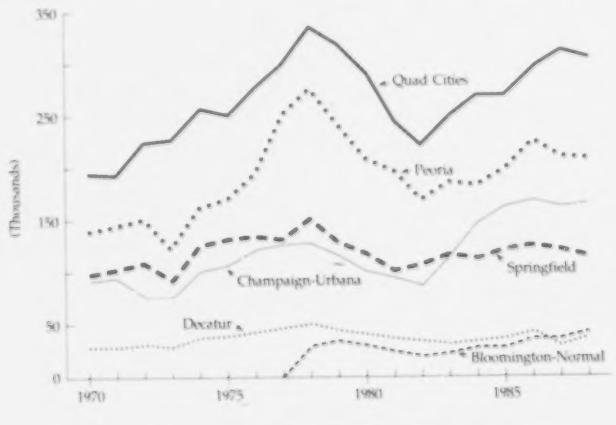
[1]Moline, East Moline, Rock Island, Illinois and Davenport, Iowa.
[2]Peak year.

Source: Administrative offices of respective airports.

Growth , 1970–1989

During the period 1970–1989, all six major downstate Illinois cities experienced growth in the number of airline boardings, as shown in Table 1 and Chart 1. Champaign-Urbana led in percent gains with an increase of 100 percent, while the Quad Cities and Peoria gained 64 percent and 55 percent, respectively. The average overall rate of growth was 69 percent. Of the five cities for which data are available for the entire period, all experienced sharp declines in the number of boardings from 1978–1979 through 1981 or 1982. Two factors accounted for the falling trend. A deep recession in the national economy reduced demand for airline transportation, while a sharp contraction of short-destination service by Ozark Airlines (the major carrier at that time) reduced the supply of airline services. The elimination of the Civil Aeronautics Board (CAB), due to the Airline Deregulation Act of 1978, allowed airlines to withdraw from existing markets and enter new markets at their own discretion. Ozark chose to develop St. Louis as a hub and, subsequently, shifted its equipment from short-haul airports to long-haul interstate destinations such as Miami and San Diego.

Chart 1. Airline Boardings, Selected Cities



Changing Structure of Air Service

The six major downstate Illinois cities not only experienced overall growth in air traffic

between 1970 and 1989, but they also experienced substantial changes in the structure of air service, as shown in Charts 2 and 3. In 1971, there was an average of 36 nonstop flights serving the six cities. This included numerous flights between the downstate cities, as well as flights to the two big hub centers of Chicago and St. Louis. Direct nonstop service increased to a peak of 47 flights in 1980. However, the number of direct nonstop connecting flights declined to 20 by November 1989.

In number of weekday arrivals, the six cities experienced a rise from 107 in 1972 to an early peak of 189 in 1980, then a decline to 149 in 1985 before peaking at 216 in 1989. The case of Bloomington-Normal is particularly striking. It had only four arrivals daily in 1971, but had 29 arrivals by 1989. Air travelers now have more options than ever before in terms of the time or day of the week a flight may be taken.

Change in Air Travel

In contrast to the major cities, four selected small downstate Illinois cities experienced an overall decline in airline boardings over the period from 1970 through 1989, after peaking in the mid- to late-1970s (see Chart 4 and Table 2). What explains the early peaks and the major declines in air travel among these smaller cities? In the case of Danville, Mattoon-Charleston, and Mount Vernon, some travelers have chosen in recent years to drive to larger cities such as Indianapolis, St. Louis, Chicago, and Champaign-Urbana with more frequent service and more high-altitude, faster, jet service. This phenomenon also applies to Carbondale, except that its drastic decline was also brought about by a serious accident in 1983 that led to the total shutdown of Air Illinois, headquartered in Carbondale. Another factor that explains declining traffic was the elimination of subsidies by the federal government, originally provided by the EAS (Essential Air Services) as part of the federal air policy under the CAB. These subsidies were largely eliminated under the Deregulation Act of 1978, leading to the withdrawal or reduction of service to many small Illinois cities.

Table 2. Airline Boardings, Four Selected Small or Medium Size Illinois Cities, 1968-1989

Year	Danville	Carbondale	Mattoon-Charleston	Mount Vernon
1968	2,167	NA	3,959[1]	5,692
1969	9,922	NA	NA	5,606
1970	10,258	7,874	NA	5,900
1971	9,548	9,515	NA	4,105
1972	9,502	9,141	NA	5,230
1973	11,673	10,777	NA	4,534
1974	11,074	18,781	NA	4,000
1975	11,931	16,085	NA	4,503
1976	13,799	15,086	NA	5,189
1977	NA	16,228	3,610	5,372
1978	15,555	19,062	3,366	5,584
1979	13,997	22,670	NA	5,599
1980	13,877	21,750	2,456*	3,003
1981	8,618	20,631	2,571*	2,514
1982	6,754	18,619	1,926*	2,541
1983	7,273	16,090	3,261	2,009
1984	6,643	7,353	4,529	1,737
1985	6,887	7,211	4,552	1,741
1986	5,141	44	3,860	1,417
1987	4,496	1,845	3,014	195[1]
1988	3,591	2,619	2,298	831
1989	3,214	0[2]	3,318	0[3]

[1]Five months.
[2]Commercial operations ceased June 1988.
[3]Commercial operations ceased June 1989.
*Estimated

Source: Administrative offices of respective airports.

Decline of Jet Service after 1980

All six major downstate Illinois cities have experienced a decrease in jet service as a percentage of total flights since 1980, although the pattern varies among the cities (see Table 3). In 1971, almost three-fourths of all flights arriving in

Chart 2. Nonstop Service (Selected Cities)

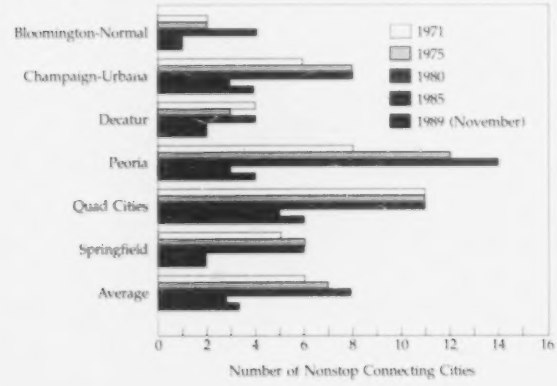
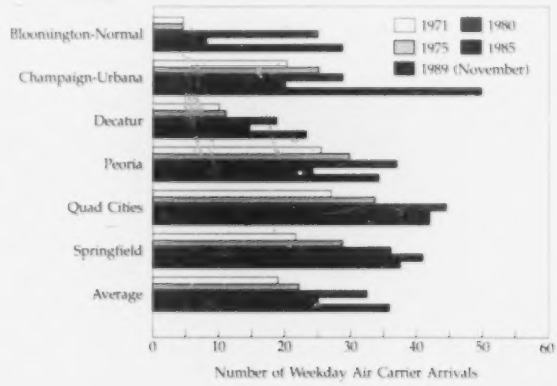


Chart 3. Service Levels

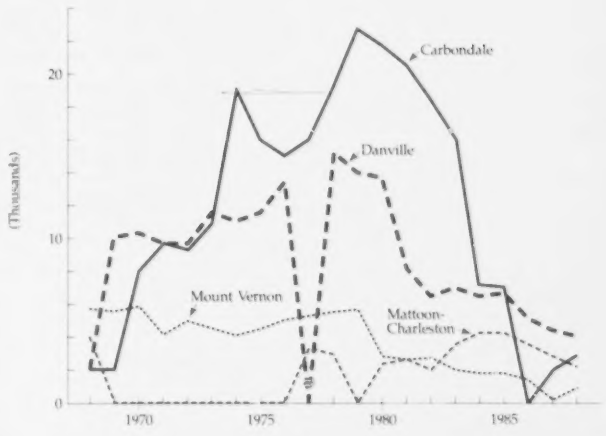


Springfield were jets, either DC-9s or Boeing 737s. By 1989, however, Springfield had lost all jet service, as had Decatur. And Champaign-Urbana had declined from 48 percent in 1975 to just 6 percent in November 1989. The Quad Cities had the best jet service by 1989, experiencing a decline of only 17 percentage points, down to 35 percent.

Jet service has many obvious advantages over propjet or piston engine aircraft. The jets fly "above the weather" at 15,000 feet or higher and attain speeds of upwards of 500 miles an hour. They also have stand-up room with overhead compartments, lavatories, flight attendants, food and beverage service, and are able to accommodate 90 or more passengers. The propjets are smaller, fly at lower altitudes and much lower speeds, and have very limited food and beverage service, if any at all.

As noted earlier, prior to 1980 Ozark withdrew jet service from subsidized small-to-medium-sized cities in order to use its equipment on longer and more profitable interstate routes out of its St. Louis hub. The freedom to change was provided under the Deregulation Act of 1978, which also eliminated or reduced the federal subsidies to the smaller cities. Other major trunk or regional airlines followed this same pattern of withdrawal at local levels and the build-up of hub centers in the big metropolitan cities. Recent mergers and acquisitions appear to influence the emergence of long-haul domestic and international flights.

Chart 4. Airline Boardings, Selected Cities



Recent Proliferation of Airline Service

Prior to 1975, there were only two principal airlines serving downstate Illinois, namely Ozark and United Airlines; these were supplemented by a small Illinois-based commuter airline (see Table 4). Since 1975, however, there has been a substantial expansion in the number of airlines from three in 1975 to eleven in 1989. The new airlines are mostly commuter carriers, affiliated with a few large trunk lines and used primarily to funnel downstate air passengers into the three big hub centers of Chicago, St. Louis, and Dayton, Ohio.

Table 4 shows the high rate of mergers and acquisitions that have occurred, especially since 1980, along with the relatively high failure rate for startup airlines. Despite the great number of acquisitions and mergers, the average air traveler still had a relatively wide variety of airlines to choose from in 1989.

Table 3. Percent Jet Flights of Total Flights[1] in Six Major Downstate Illinois Cities, 1971-1989

City	1971	1975	1980	1985	1989[2]
Bloomington-Normal	0	0	0	0	0
Champaign-Urbana	45	48	31	19	6
Decatur	44	36	29	0	0
Peoria	54	63	47	33	21
Quad Cities	52	70	47	27	35
Springfield	71	23	24	19	0
All Six Cities	52	48	33	21	11

[1]Arrivals.
[2]November.

Source: *Official Airline Guide.*

Current Concerns

One important concern for downstate Illinois air travelers is the rise in the relative cost of flying short distances to the hub centers compared to the cost of long-distance flights. For example, a recent air fare from Champaign-Urbana to St. Louis for round-trip (unrestricted) coach flights was $218, or $1.58 per mile. In contrast, the round-trip (unrestricted) coach fare from St. Louis to Los Angeles was $624, or $0.54 per mile.

If short distance fares continue to rise rapidly, travelers from the six downstate Illinois cities may increase their use of alternative forms of transportation, particularly that of driving to major hub centers such as Chicago, St. Louis, and Indianapolis. Although national statistics report strong growth in national air travel in recent years, many medium to small cities have experienced sharp declines in air travel (Table 2 and Chart 4).

Outlook for Short Distance Air Travel

After enactment of the Deregulation Act of 1978, the large regional and trunk airlines withdrew their 100 passenger-plus, fast, "above the weather" pressurized jets that provided many services and substituted small 10–20 passenger, "through the weather" planes that have few amenities. This has created a real "commuter gap." However, technology and consumer

Table 4. Airlines Serving Six Major Downstate Illinois Cities, Selected Years, 1971-1989[1]

1971	1975	1980	1985	1989
Ozark	Ozark	Ozark	Ozark[8]	United
Air Illinois	Air Illinois	Air Illinois[4]	United	United Exp
Vercoa Airline[2]	United	United	Britt[9]	TWA
United		Britt	United Exp[10]	TWA Express[13]
Air Mid America[3]		Miss. Valley[5]	Air Midwest[11]	Continental West[14]
		Continental[6]	Piedmont[12]	American Eagle[15]
		Decatur Aviation[7]	TWA	Midway Connection[16]
				U.S. Air
				U.S. Air Exp[17]
				American West
				Northwest Air Link[18]

[1]The express airlines are considered separate airlines from their major trunk affiliates or owners in this survey. The parent major airlines, as American, United, etc. emphasize long distance flights using jet equipment. The express airlines owned by or having code sharing agreements with majors, are usually commuter airlines emphasizing short distances and using slower and smaller jet prop planes. Code sharing by a major and an affiliated commuter (express) airline may include joint ticketing, computer listing, baggage handling, coordinated schedules, and such support services as crew training.

[2]Ceased operation in 1971.
[3]Ceased operation in 1971.
[4]Ceased operation in October 1983.
[5]Acquired by Air Wisconsin in 1985 which later became United Express.
[6]Acquired by Texas Air in 1982.
[7]Ceased operation in 1980.
[8]Acquired by TWA in 1986.
[9]Acquired by Texas Air in 1986.
[10]Started by United after code sharing with Air Wisconsin in 1985.
[11]Ceased operation after 1985.
[12]Acquired by U.S. Air in August 1989.
[13]Started by TWA after acquiring Ozark in 1986.
[14]Started by Texas Air after purchase of Britt Airways in 1986.
[15]Started by American Airlines after code sharing with Simmons Airlines. The Simmons name disappeared on American's feeder routes.
[16]Started as a commuter airline by Midway Airline in 1988.
[17]Started as a commuter airline by U.S. Air in August 1989 after acquisition of Piedmont Airlines.
[18]Started after merger of Republic Airlines into Northwest Airlines in 1986.

preferences are acting together to close this gap. Jet planes are getting smaller: British Aerospace is introducing its ATP 68 passenger jet for shorter flights, the Fokker Company is introducing a (F28) 65 passenger jet, and Canadair is introducing a 48 passenger jet (60 IRJ). All are better adapted to short flights. At the same time, the turboprop planes are getting larger, faster, pressurized, and provide more amenities. For example, the Aeritalia Aerospatiale (ATR42) will have 40–50 seats, the Embraer Brasilia (EMB120) will have 30 seats, and the SAAB 2000 will have 50 seats.

The closure of the "commuter gap" should serve to improve air service to downstate Illinois cities, and to slow or reverse the practice of driving to major hub centers for airline service.

News from BEBR

Beginning with our next issue, the Bureau of Economic and Business Research will charge a subscription fee for the *Illinois Business Review*. The $10.00 annual subscription fee will cover increased printing and mailing charges. Please consult the order form at the bottom of this page for information on discounts for multiyear subscriptions. In order to continue to receive your copies of the *Review* without interruption, please fill out and return the form right away.

Illinois Statistical Abstract and *Illinois Economic Outlook*

The *Illinois Statistical Abstract* and the *Illinois Economic Outlook* are available for immediate purchase from the Bureau of Economic and Business Research. The *Abstract* provides the most current economic and demographic statistical data for Illinois in a comprehensive, single-source reference. More than 400 data tables and charts provide detailed coverage for Illinois, its counties and statistical metropolitan areas, and for the United States. Some topics covered are personal income, transfer payments, employment, census of services, comsumer price indexes, state revenue and expenditures, export dependent employment, non-farm earnings, industry employment, gross state product, census of population and housing, inflation rates, estimated retail sales, crime and law enforcement, farm income, labor force statistics, census of manufacturing, building permits, commercial banking, and exports.

The *1991 Illinois Economic Outlook* examines various sectors of the Illinois economy and provides a sixteen-quarter forecast based on the Illinois Econometric Model maintained by the Bureau of Economic and Business Research. In addition, trends for the coming year are predicted for these topics: agriculture, banking, fiscal position, education, exports, health care, and energy. Both publications can be ordered on the form below.

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Illinois Business Statistics

Growth rates in real personal income in Illinois have continued downward through 1990 (Chart 1). The Illinois econometric Model (IEM) predicts that real income growth in good-producing industries will remain negative through 1991. Service-producing industries, which experienced real income growth in excess of 5 percent in 1988, are expected to have grown at annual rate of less than two percent in 1990.

The current economic downturn is responsible for a slowdown in employment growth in Illinois into the foreseeable future (Chart 2). Again, the goods-producing sector, which includes manufacturing, will be hardest hit. The IEM predicts that the total number of jobs in Illinois will actually shrink in 1991.

Construction employment is expected to experience the most precipitous decline. In the first quarter of 1990, construction employment stood at a seasonally adjusted 213,000. Employment in that sector is expected to fall to 203,500 in the first quarter of 1991 and to 193,000 in 1992, a net decline of 9.4 percent in just two years.

Forecast Statistics

Personal Income (millions of dollars, seasonally adjusted at annual rates)

	1989	1990:I	1990:II	1990:III*	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:I
Total personal income	$219,449	$227,140	$229,459	$236,336	$239,859	$243,246	$247,109	$251,211	$255,716	$260,021
Total nonfarm personal	160,164	163,599	166,200	171,069	173,518	175,665	178,362	181,210	184,663	187,722
Total private nonfarm	140,267	143,109	145,357	149,513	151,568	153,432	155,816	158,444	161,508	164,303
Mining	1,048	1,118	1,137	1,153	1,183	1,192	1,210	1,224	1,234	1,242
Construction	9,687	10,031	9,552	10,100	10,256	10,451	10,586	10,822	11,035	11,258
Manufacturing	33,301	33,316	34,078	35,437	35,474	35,324	35,395	35,605	35,968	36,348
Durable	20,704	20,311	20,638	21,815	21,746	21,480	21,400	21,451	21,679	21,904
Nondurable	12,597	13,005	13,440	13,622	13,729	13,843	13,994	14,153	14,289	14,444
Transp. & pub. utilities	11,743	12,092	12,345	12,509	12,659	12,743	12,901	13,068	13,290	13,469
Wholesale trade	13,315	13,317	13,529	13,799	14,017	14,235	14,486	14,714	14,988	15,232
Retail	14,342	14,416	14,611	14,936	15,044	15,107	15,361	15,603	15,976	16,094
Finance, ins. & real estate	13,870	14,219	14,494	14,571	14,801	15,059	15,318	15,600	15,907	16,215
Services	42,272	43,913	44,926	47,008	48,135	49,322	50,559	51,808	53,110	54,445
Government	19,897	20,490	20,843	21,556	21,950	22,233	22,546	22,766	23,155	23,419

*Forecast begins

Gross State Product (millions of dollars, seasonally adjusted at annual rates)

	1989	1990:I	1990:II*	1990:III	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:I
Total	$258,376	$263,974	$269,589	$275,811	$279,759	$283,299	$286,933	$290,835	$295,021	$299,250
Total private nonagricultural	231,145	235,879	239,926	246,465	250,077	253,318	256,646	260,221	264,057	267,933
Mining	1,781	1,901	1,933	1,601	1,663	1,647	1,616	1,591	1,559	1,519
Construction	11,024	11,415	10,870	11,391	11,511	11,646	11,846	12,038	12,219	12,390
Manufacturing	49,109	49,307	50,495	49,523	49,148	48,787	48,616	48,615	48,812	49,057
Durable	27,103	26,587	27,015	26,521	26,069	25,557	25,196	25,027	25,048	25,120
Nondurable	22,007	22,720	23,480	23,002	23,080	23,230	23,419	23,588	23,765	23,937
Transp. & pub. utilities	25,835	26,602	27,159	27,829	28,032	28,306	28,634	28,946	29,260	29,577
Wholesale trade	22,530	22,532	22,891	23,439	23,856	24,178	24,468	24,777	25,103	25,419
Retail trade	23,564	23,685	24,006	25,137	25,406	25,755	26,161	26,561	26,973	27,401
Finance, ins. & real estate	47,296	48,487	49,425	51,998	53,430	54,566	55,472	56,439	57,457	58,448
Services	50,008	51,949	53,147	55,545	57,032	58,433	59,835	61,253	62,673	64,123
Government	23,100	23,789	24,199	24,745	25,233	25,594	25,907	26,209	26,563	26,868
Agriculture	4,131	4,306	5,464	4,601	4,449	4,387	4,380	4,405	4,401	4,449

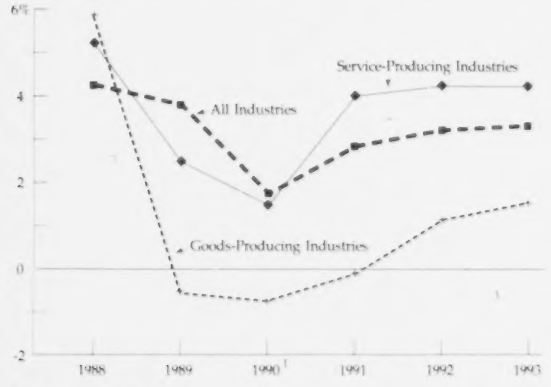
*Forecast begins

Illinois Employment Forecast (in thousands, seasonally adjusted)

	1989	1990:I	1990:II*	1990:III	1990:IV	1991:I	1991:II	1991:III	1991:IV	1992:I
Total nonfarm employment	5,178.8	5,207.1	5,218.8	5,215.9	5,216.9	5,198.4	5,173.5	5,164.4	5,173.7	5,187.1
Total private nonfarm emp.	4,441.1	4,462.8	4,467.1	4,472.0	4,470.0	4,450.1	4,422.7	4,415.8	4,423.5	4,439.3
Mining	19.8	19.5	19.8	20.0	20.3	20.7	20.4	20.3	20.4	20.7
Construction	209.7	213.2	207.1	205.5	203.6	203.5	195.7	193.0	191.0	193.0
Manufacturing	981.2	979.5	980.8	977.7	963.8	947.7	933.4	928.0	927.1	930.1
Durable	598.3	596.2	597.4	594.4	585.6	574.4	564.4	561.3	562.2	565.7
Primary metals	56.3	56.2	56.4	56.3	55.1	53.2	51.3	50.5	50.1	49.9
Fabricated metals	107.2	106.3	106.4	106.2	104.2	101.9	99.6	98.5	98.5	98.9
Nonelectrical machinery	154.2	155.3	155.4	155.6	153.0	148.2	144.2	142.6	142.7	143.6
Electrical machinery	118.4	117.7	116.6	115.8	116.6	117.6	119.5	122.1	124.8	128.1
Nondurable	382.9	383.4	383.4	383.3	378.2	373.3	369.1	366.7	364.9	364.4
Food & kindred products	90.2	90.2	90.0	90.6	88.9	87.4	86.2	85.3	84.1	83.5
Printing & publishing	112.8	112.8	112.9	112.3	109.7	108.0	106.5	105.1	103.9	103.2
Chemicals & allied prod.	61.1	61.6	61.7	61.9	61.7	61.4	61.2	61.2	61.2	61.2
Transportation and pub. utilities	304.4	306.2	306.4	307.1	305.7	304.9	303.6	303.1	302.7	303.3
Wholesale trade	374.1	375.7	377.1	376.1	376.5	376.1	374.1	372.6	373.5	374.3
Retail trade	900.5	906.1	907.1	908.5	912.1	902.6	899.4	899.7	901.4	902.5
Finance, ins. & real estate	372.4	373.2	373.0	373.2	373.9	373.7	372.4	371.0	371.7	371.6
Services	1,278.9	1,289.4	1,295.8	1,303.9	1,314.1	1,320.9	1,323.8	1,328.1	1,335.7	1,343.8
Government	737.7	744.3	751.7	743.9	746.9	748.3	750.8	748.6	750.2	747.8

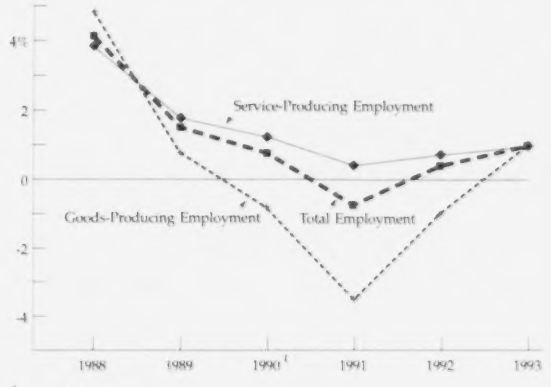
*Forecast begins.

Chart 1. Growth Rates in Real Personal Income (1982=100)



[1]Forecast begins

Chart 2. Growth Rates of Employment in Illinois



[1]Forecast begins

Historical Statistics

	One Year % Change	Oct. 1990	Sep. 1990	Aug. 1990	July 1990	June 1990	May 1990	Oct. 1989
Building permits (thousands)								
Residential Housing Units	-10.54	2.767	3.178	3.265	3.167	3.531	3.658	3.093
Value of residential units	-34.70	$251,262	$260,938	$299,246	$298,885	$321,515	$348,264	$384,805
Value of nonresidential housing								
Industrial buildings	18.21	$28,648	$32,910	$33,601	$41,137	$23,423	$57,706	$24,234
Office, banks, and professional buildings	-43.51	$35,060	$27,969	$111,955	$23,086	$29,565	$18,932	$62,069
Stores and other mercantile buildings	-2.49	$44,310	$43,765	$27,013	$39,463	$55,120	$62,213	$45,440
Other	-8.32	$6,667	$6,158	$6,054	$4,672	$9,910	$7,658	$7,272
Consumer price index (1982-1984=100)								
United States	6.29	133.5	132.7	131.6	130.4	129.9	129.2	125.6
North Central US	5.69	130.0	129.4	128.4	126.9	126.9	126.0	123.0
North Central/pop. more than 1,200,000	5.47	131.1	130.7	129.9	128.6	128.6	127.4	124.3
North Central/pop.360,000 to 1,200,000	5.82	129.1	128.3	127.6	125.8	125.6	125.3	122.0
North Central/pop. 50,000 to 360,000	6.43	130.8	129.9	127.8	126.2	126.5	125.9	122.9
North Central/pop. less than 50,000	6.43	125.8	125.0	124.1	122.6	122.3	121.4	118.2
Chicago	5.13	133.3	133.8	133.2	132.0	131.7	130.4	126.8
St. Louis	NA	NA	129.9	NA	128.0	NA	126.7	NA

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Spring 1991 / Volume 48 / Number 1

Contents

3 *Illinois and National Recessions: Will History Repeat?*
Stephen F. Quinn

6 *The Chanute Air Force Base Closure: An Update*
Robert P. Hartwig

10 *Workers' Compensation Rates in Illinois*
John C. Hamilton

13 *A Beginner's Guide to Corporate Barter*
Nigel M. Healey

16 *Services and the Services-Producing Industries in Illinois*
William R. Bryan

18 *Illinois Business Statistics*

Illinois
Business
Review

Spring 1991 / Volume 48 / Number 1

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Stephen F. Quinn

Illinois and National Recessions: Will History Repeat?

Unlike the recessionary periods in the early 1980s, the current downturn appears to be imposing no worse hardship on Illinois than on the nation as a whole. At the end of 1990, the Illinois unemployment rate was lower than the national average, and state tax receipts were holding steady. The gross state product (GSP) for the fourth quarter of 1990, a measure of the state's total income or the value of final goods and services produced, seems not to have fallen as much as in the nation as a whole (GNP). Is this the quiet before the storm, or is Illinois insulated from the ill fortune of other regions?

To address these questions, recent Illinois economic history relative to that of the United States will be reviewed. Of course, national downturns dampen a state's economy, but the hardships of recession are not evenly distributed among the states. Recent changes in the nature of the Illinois economy may be making the state less sensitive to national trends.

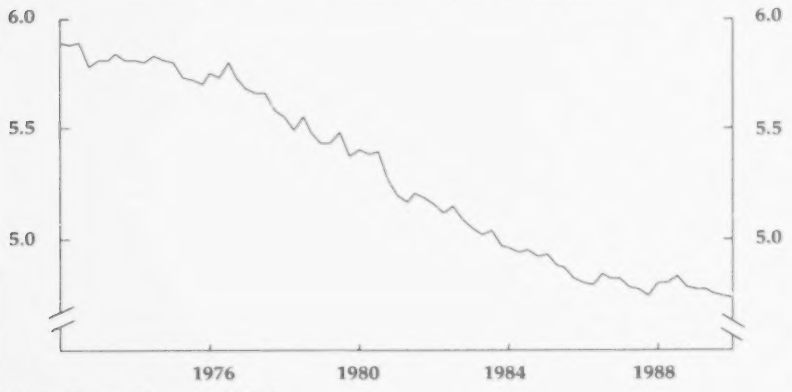
Gross State Product

While enjoying some real growth over the past 15 years, real gross product for Illinois has contracted with more severity and grown with less vigor than in the nation as a whole. As a consequence, Illinois declined as a portion of the United States economy until late into the 1980s. From 1972 to 1985, Illinois GSP as a portion of US GNP fell from 6.2 percent to just under 5 percent (Chart 1). Illinois sporadically drifted downwards during the period with the most dramatic contraction coming with the regional downturn in 1985. During that single year, an expansion in the national economy was coupled with a recession at the state level. Since 1985, GSP has kept pace with gross national product.

Chart 1. Illinois GSP as a Percentage of US GNP

Source: Bureau of Economic Analysis

Chart 2. Illinois Employment as a Percentage of US Employment



Source: Bureau of Economic Analysis

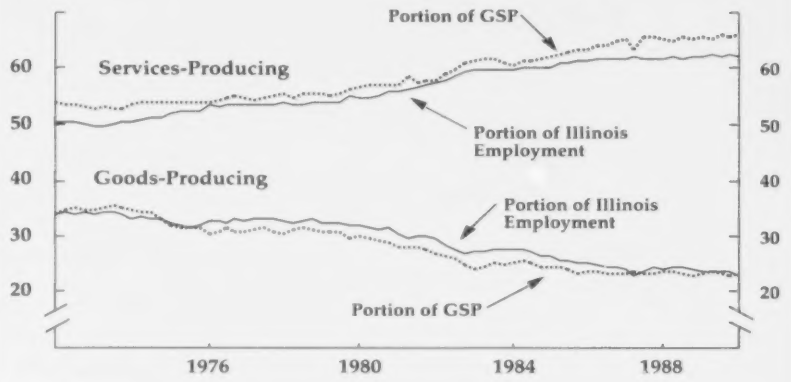
Employment

Employment developments in Illinois show a similar pattern. Since 1972, the rate of job creation in the United States has consistently outstripped that in Illinois. The consequent decline in the percentage of Illinois employment relative to national employment (Chart 2) mirrors GSP's fall. Even so, the state's loss in job share has slowed in recent years. Since 1986, Illinois employment levels have become stable relative to national levels.

The long-run erosion of the state's relative economic position

accelerated in the mid-1970s and continued unabated through the mid-1980s. Both gross product and employment trends illustrate that Illinois has not matched national expansion rates during good times. Moreover, Illinois has outdone national rates of contraction during recessionary periods. Illinois suffered disproprtionately from the national recessions of the mid-1970s and early 1980s. Unless meaningful change has affected the Illinois economy, a national downturn in 1990 positions the state to repeat the recessionary scenarios of the past, a worse-than-the-national-average contraction of GSP and employment.

Chart 3. Sectors as a Percentage of GSP and Illinois Employment



Source: Bureau of Economic Analysis and Bureau of Labor Statistics

The Changing Illinois Economy

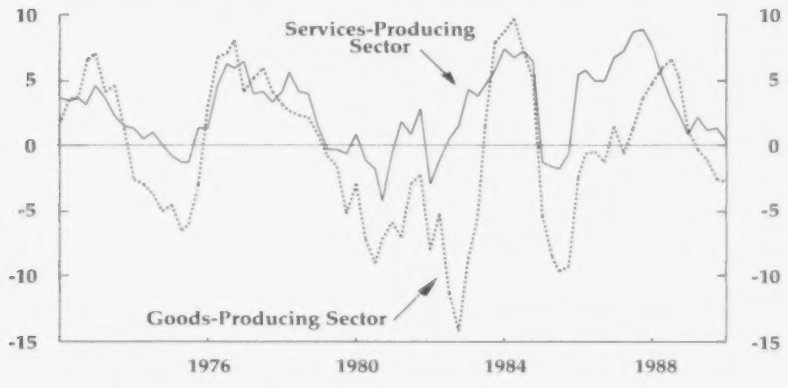
Consideration of the historical relationship between the Illinois and US economies should be tempered with knowledge of how the composition of the state's economy has changed. Since 1972, the highly volatile goods-producing sector has been a shrinking share of the Illinois economy, while the more stable services-producing sector has grown. The goods-producing sector consists of mining, construction, and manufacturing while the services-producing sector consists of transportation; wholesale and retail trade; public utilities; real estate; insurance; finance; and household, business, and legal services. The implication of the diminished role of manufacturing in the state economy is that Illinois may break its historical trend. Indeed, services, along with finance, insurance, and real estate may have become the sectors whose characteristics dominate the state economy. If so, Illinois may avoid the relatively severe state-level effects historically associated with national recessions.

Chart 3 shows that the services-producing sector has gained a 10 percent share of GSP over the past 15 years, while the goods-producing sector has declined by an identical percentage of GSP. Again, employment developments paralleled changes in GSP. Employment in goods-producing industries declined from 35 to 25 percent of total, nonagricultural state employment, and services-producing employment rose from 45 to 55 percent of state employment.

Besides growing in relative size, the services-producing sector's gross product varies less than the goods-producing sector. Significantly, services production avoids the deep pockets of negative growth to which the goods-producing sector is prone (Chart 4). Key to unemployment concerns, the services-producing sector has historically avoided the severe drops in employment associated with goods production (Chart 5). The size and buoyancy of the Illinois services-producing sector will serve to mute the impact of a national recession on the state economy.

GSP data for fourth quarter 1990 and first quarter 1991 are not yet available, so clear conclusions regarding the role of Illinois in the national recession remain undrawn. While GSP data have significant lags, other sources of economic information are available on a more timely basis. Monthly state employment data show a strong finish in 1990. In December, the Illinois unemployment rate of 6.0 percent was just below the US rate (6.1 percent). Though not evidence of expansion,

Chart 4. Annual Rate of Change in Illinois Real State Product



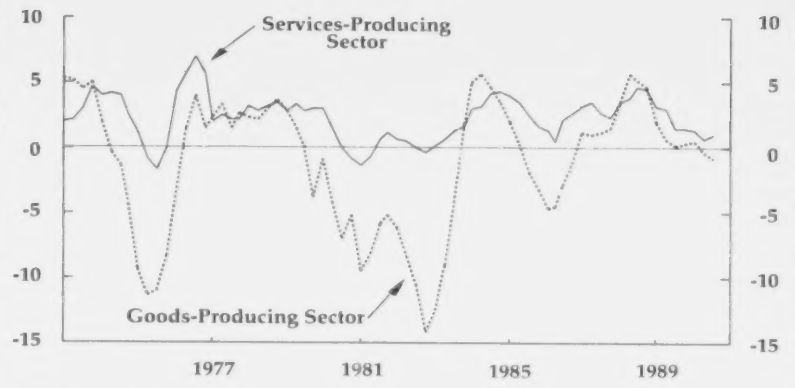
Source: Bureau of Economic Analysis

the Illinois employment numbers were not faring worse than the nation as a whole.

Monthly state revenue receipts provide another current source of information for the Illinois economy. Reflecting actual changes in personal income within the state, personal income tax receipts have remained strong. From July 1990 to January 1991 (a little over half of the fiscal year), personal income tax receipts grew by 1 percent over a year earlier. However, turns in personal income growth tend to lag changes in gross state product. Consequently, the stability of personal income tax revenue may reflect the strength of the Illinois economy during the third quarter of 1990.

The retail sales tax has not fared as well as the personal income tax. Retail sales were soft during the second half of 1990 with especially weak showings in September and December . Historically, the retail sector has been a leading indicator of changes in GSP. If historical patterns repeat, a shrinkage in GSP in the fourth quarter of 1990 and the first quarter of 1991 seem likely. While GSP may join GNP in recession, the retail sales tax numbers do not indicate a severe contraction. Indeed, January 1991 showed moderate strength. Though marginally weak, receipts from the retail sales tax do not portend the bottom falling out of the state economy.

Chart 5. Annual Rate of Change in Illinois Employment



Source: Bureau of Labor Statistics

The idea that Illinois has broken its historical trend within the national economy is worthy of tentative support. Although it is likely that the Illinois GSP has fallen in the fourth quarter of 1990 and the first quarter of 1991, indications are that Illinois has not fared worse than the national average. The increased role of the services-producing sector in Illinois may be insulating the state economy from the misfortunes of other regions. Definitive conclusions, however, must await more complete data.

Robert P. Hartwig

The Chanute Air Force Base Closure: An Update

Since 1917, the small east-central Illinois community of Rantoul has been home to Chanute Air Force Base. In the 74 years since its opening, military expenditures associated with the base have come to be a chief driving force behind Rantoul's economy. But on December 28, 1988, the Department of Defense (DOD) listed Chanute as one of 86 military installations earmarked for realignment or closure. Subsequent legal efforts to keep the base open failed, and the community has since focused attention on its post-closure well-being. The base is slated for a phased closure to be completed by late 1993.

There is ample evidence to suggest that Rantoul will remain a vital community in the future.[1] The Office of Economic Adjustment (OEA), the DOD entity entrusted with assisting communities like Rantoul, cites numerous instances in which communities have rebounded from a round of base closures in the 1960s. Generally, the OEA success stories are based on snapshots of the affected community ten to twenty years following closure. The economic dynamics at work in the local economy during the intervening period remain largely undocumented.

The Longitudinal Study of the Village of Rantoul, Illinois (LSVRI), was conceived with the objective of providing insights into these dynamics. The study was developed in conjunction with members of Rantoul's business and government community. It is a long-term study undertaken by the Bureau of Economic and Business Research (BEBR) at the University of Illinois at Urbana-Champaign that is designed to track the performance of the Rantoul economy as it adjusts to a diminishing military presence. Much of the data for the study are obtained through a confidential, semi-annual survey of Rantoul businesses, non-profit organizations, schools, and the municipality itself. Publicly available state and federal data, such as census reports, are also utilized. Local businesses and town officials receive semi-annual reports summarizing the study's findings.

This report begins with a discussion of the variables monitored by the study and concludes with a presentation of findings and observations for the first full year.

Focus of the Study

There are many economic and demographic variables relating to the Rantoul economy that are likely to change as a result of the base closure. The LSVRI focuses on a subset of those variables that are easily quantifiable. In particular, the study tracks earnings (sales, gross billings, pretax income, and contributions), current employment (full-time, part-time, and total), projected employment (full-time, part-time, and total), school funding and employment, and municipal tax receipts and employment. Data relating to population, building permits, and business closure/failure are also collected. Finally, the business community is also asked to rate the overall business climate in Rantoul for the next six- and twelve-month periods.

The study divides the Rantoul economy into seven segments: retail, professional, artisan/contractor, financial, non-profit, school, and municipal. Survey questionnaires were developed for each of these segments. Dividing the economy in this manner facilitates the identification of weaknesses and strengths in specific sectors of the village economy.

Results

The first semi-annual survey was taken in March 1990 and covered the period July 1, 1989 to December 31, 1989. The second survey was taken in October 1990 and covered the six month period ending June 30, 1990. Survey questions ask for current data and for the change from the same period in the previous year. As a result, the LSVRI has, in effect, collected two years of data on the Rantoul economy. The time period is especially important since our earliest data predate the closure announcement. Thus, they serve as a benchmark and reference point.

Base Population, Employment, and Income

The closure announcement was made in late December of 1988. During that year, Chanute employed 2,383 permanent party military personnel, 991 appropriated-fund civilians, 542 nonappropriated fund/base exchange personnel, 864 contract civilians, and 63 other civilians. In addition, there were, on average, 2,759 students enrolled. During fiscal year 1988, Chanute had a payroll of $123.6 million and pumped between $107 million and $135 million into the local economy.

As of November 1990, only 75 military trainees and 25 instructors had left Chanute. About 25 others had been deployed to the Persian

[1] For more details see my article in the June, 1989 edition of this publication.

Gulf. Between 100 and 300 persons are expected to be reassigned during 1991, 1,800 in 1992, and the rest by late 1993. Thus, to date, only minor changes have taken place.

Private Sector Earnings (Sales, Gross Billings, Income, and Contributions)

The initial impact of the closure announcement on Rantoul's private sector was severe despite the fact that few personnel had actually been transferred from Chanute. Table 1 shows that in 1989 mean per-firm earnings fell in every segment of the economy except the industrial sector.

Nearly half of the retailers sampled reported a drop in sales during the second half of 1989 as compared with the same period in 1988 (before the closure was announced). Though over 40 percent of retailers reported increased sales, the average and median increases were small when compared with the large, negative figures at declining firms. One-third of professional businesses and artisan/contractors reported decreased earnings as did 50 percent of financial institutions.

Table 1 also compares earnings results from the first six months of 1990 with the same period in 1989. The findings are quite different. The average retailer, professional business, and nonprofit organization reported increased earnings, reversing the trend from the previous six-month period.[2] Also, there was an improvement reflected in the proportion of financial institutions reporting decreased earnings.

Private Sector Employment

Employment figures in Table 2 can be viewed as a reflection of the earnings figures in Table 1. In general, a greater proportion of firms reported decreased employment during the last half of 1989 than during the first half of 1990. Moreover, the average number of jobs lost per firm in the retail and professional sectors shrank. Most sectors of the economy showed a larger proportion of firms with increased employment in the first half of 1990, while the majority of firms in both survey periods reported no change in employment.

Two positive developments are in evidence. Industrial employment continues to expand in Rantoul and fewer artisan/contractors reported reduced employment in early 1990.

Schools

As of March 15, 1990, Rantoul public schools employed 353 people. By the end of academic year 1990–91, administrators expect to

[2] Non-profit organization was a new category included in the second survey period. It contains some types of businesses previously included under the heading of profession business.

Table 1. Change in Earnings

		July 1, 1989–December 31, 1989 (over the same period in the previous year)							
TYPE	Percent Reporting Decreased Earnings	Mean Change Decreasing Firms	Median Change Decreasing Firms	Percent Reporting No Change in Earnings	Percent Reporting Increased Earnings	Mean Change Increased Firms	Median Change Increased Firms	Mean Change All Firms	Median Change All Firms
Retail	48.9%	($205,269)	($23,750)	8.9%	42.2%	$77,332	$18,454	($66,231)	0
Professional	35.3%	($83,569)	($33,495)	17.6%	47.1%	$14,834	$8,516	($22,514)	0
Artisan/Contractor	33.3%	S	S	33.3%	33.3%	S	S	($123,258)	0
Industrial	0.0%	NA	NA	0.0%	100.0%	$2,500,000	S	$2,500,000	S
Financial	50.0%	($139,940)	S	25.0%	25.0%	S	S	($66,470)	($62,440)

		January 1, 1990–June 30, 1990 (over the same period in the previous year)							
TYPE	Percent Reporting Decreased Earnings	Mean Change Decreasing Firms	Median Change Decreasing Firms	Percent Reporting No Change in Earnings	Percent Reporting Increased Earnings	Mean Change Increased Firms	Median Change Increased Firms	Mean Change All Firms	Median Change All Firms
Retail	37.1%	($86,026)	($26,150)	5.7%	57.1%	$67,902	$20,162	$6,051	$14,098
Professional	25.0%	($11,333)	($12,000)	0.0%	75.5%	$30,737	$15,455	$20,219	$4,500
Artisan/Contractor	33.3%	S	S	66.7%	0.0%	NA	NA	$0	$0
Industrial	0.0%	NA	NA	0.0%	100.0%	$860,560	S	$860,560	S
Financial	33.3%	S	S	0.0%	66.7%	$4,405	S	($10,064)	$3,000
Non-Profit	28.6%	($3,500)	S	14.3%	57.1%	$3,113	$1,755	$777	$883

S=suppressed to preserve anonymity
NA=not applicable
Note: Earnings measured as sales (retail, industrial, artisan/contractor); gross billings and commissions (professional); pre-tax income (financial institutions), and contributions/dues (non-profit organizations)

Table 2. Change in Employment

July 1, 1989–December 31, 1989 (over the same period in the previous year)

Type	Percent Reporting Decreased Employment	Mean Change Decreasing Firms	Percent Reporting No Change in Employment	Percent Reporting Increased Employment	Mean Change Increasing Firms	Mean Change All Firms
Retail-Total	38.0%	-3.89	54.0%	8.0%	3.25	-1.3
Full	28.3%	-2.77	65.2%	6.5%	2.00	-0.7
Part	30.4%	-3.21	56.5%	13.0%	2.6	-0.6
Professional-Total	13.0%	-3.33	78.3%	8.7%	4.00	0.0
Full	13.0%	-1.33	78.3%	8.7%	3.00	0.1
Part	8.7%	-3.00	82.6%	8.7%	1.50	-0.1
Artisan/Contractor-Total	80.0%	-2.50	20.0%	0.0%	0.00	-2.0
Full	60.0%	-2.33	40.0%	0.0%	0.00	-1.4
Part	40.0%	-1.50	60.0%	0.0%	0.00	-0.6
Industrial-Total	0.0%	0.00	66.7%	33.3%	S	48.3
Full	33.3%	S	33.3%	33.3%	S	48.0
Part	0.0%	0.00	66.7%	33.3%	S	0.3
Financial-Total	40.0%	-3.00	60.0%	0.0%	0.00	-1.2
Full	40.0%	-3.00	60.0%	0.0%	0.00	-1.2
Part	0.0%	0.00	0.0%	0.0%	0.00	0.0

January 1, 1990–June 30, 1990 (over the same period in the previous year)

Type	Percent Reporting Decreased Employment	Mean Change Decreasing Firms	Percent Reporting No Change in Employment	Percent Reporting Increased Employment	Mean Change Increasing Firms	Mean Change All Firms
Retail-Total	28.6%	-3.05	4.8%	16.7%	2.3	-0.47
Full	23.8%	-1.9	66.7%	9.5%	4.0	-0.35
Part	21.4%	-1.8	59.5%	19.0%	1.8	-0.04
Professional-Total	6.3%	-1.0	81.3%	12.5%	1.0	0.06
Full	6.3%	-1.0	81.3%	12.5%	1.0	0.06
Part	6.3%	-1.0	87.5%	12.5%	1.0	0.00
Artisan/ Contractor-Total	33.3%	S	66.7%	0.0%	NA	-0.66
Full	33.3%	S	66.7%	0.0%	NA	0.00
Part	0.0%	NA	100.0%	0.0%	NA	0.00
Industrial-Total	0.0%	NA	25.0%	75.0%	29.7	22.25
Full	0.0%	NA	50.0%	50.0%	43.0	21.50
Part	0.0%	NA	50.0%	50.0%	1.5	0.75
Financial-Total	0.0%	NA	33.3%	66.7%	1.5	1.00
Full	33.3%	S	33.3%	33.3%	S	0.00
Part	0.0%	NA	66.7%	33.3%	S	1.00
Non-Profit -Total	0.3	-1.0	0.3	0.3	1.0	-0.11
Full	0.2	-1.0	0.7	0.1	1.0	-0.11
Part	0.2	-1.0	0.6	0.2	1.0	0.00

S=suppressed to preserve anonymity
NA=not applicable

lose eight teachers, three support staff, and one other. State and local aid for 1990-1991 is expected to increase, but federal aid is expected to fall as military dependents leave the community. Larger drops in federal aid are expected as the base closure accelerates in 1992 and 1993. Costs associated with increased claims for unemployment compensation are expected to rise in the future.

Because public school funding depends heavily on local property taxes, any decrease in property values will lead to decreased assessed valuation and revenues for education in the Rantoul school district. School administrators currently rate the quality of education in Rantoul as excellent. Perhaps in anticipation of decreased revenues, they expect some deterioration within one to two years.

Municipality

The municipal government in Rantoul is grappling with a number of serious economic issues simultaneously, none more important than its future well-being. It is working hard to attract new business to Rantoul and to foster the expansion of existing firms. The continued growth of its industrial sector and consistently low unemployment rate (less than 5.5 percent) are testimony to a successful campaign and to the diversification of the community's economic base. Reuse committees have been formed and are actively soliciting tenants following closure.

There are more immediate concerns about village revenue receipts. Though municipal revenues continue to increase, officials expect housing occupancy rates to drop. Consequently, they project declining revenues from dwelling-based taxes such as the water, sewer, and utility taxes. Sales tax receipts are another source of concern. At least 13 businesses are known to have closed in Rantoul (11 retail and 2 professional). Most of those businesses were small and hence had only a negligible effect on gross municipal revenues. Most large retailers in our sample reported increased sales in the first half of 1990. Village officials are concerned about real estate taxes, as the assessed valuation of a typical home in Rantoul declined 12.5 percent by the end of 1989.

Rantoul's share of federal and state taxes that are redistributed to

communities on a per capita basis (for example, some motor fuel taxes) will shrink as a direct consequence of the 1990 decennial census. That enumeration found 17,212 Rantoul residents, 2,949 or 14.6 percent fewer than the 20,161 counted in 1980.

Building rebounded in the first half of 1990 with 56 permits issued (6 residential, 3 commercial/industrial, and 47 others). In contrast, the final six months of 1989 saw virtually no new commercial/residential construction in Rantoul as measured by the number of building permits issued. Only nine permits for additions were issued. This corroborates the difficulties experienced by artisan/contractors during this period.

Expectations

Table 3 shows the expectations of the Rantoul business community. The first column shows that artisan/contractors and retailers expected to feel the greatest impact of closure. Most firms did not expect their business to increase from new or expanding firms, as indicated in the second column. Management opinion concerning the future business climate in Rantoul is given in the final two columns. Most firms are more pessimistic about the first half of 1991 than the second half of 1990.

Table 3. Expectations

TYPE	Expected Closure Impact 7/1/90-12/31/90*	Expected New/Expand. Business Impact 7/1/90-12/31/90*	Overall Rantoul Business Climate 7/1/90-12/31/90**	Overall Rantoul Business Climate 7/1/90-6/60/91**
Retail	2.4	3.1	6.2	6.1
Professional	3.0	3.7	5.1	5.7
Artisan/Contractor	1.7	2.7	7.7	6.5
Industrial	3.8	3.8	3.0	4.5
Financial	3.0	3.3	6.0	6.7
Non-Profit	2.6	2.6	NA	NA

* Scale of 4:1 = significant impact; 2 = moderate impact; 3 = slight impact; 4 = very little or no impact

**Scale of 10: 1 = very good; 10 = very poor

Summary

Rantoul's economy has shown resilience in the wake of the Chanute closure announcement. Though little has changed at the base itself in terms of personnel and payroll, the economy has begun a process of adjustment that will continue for many years. Until new tenants for the base are found, certain sectors of the economy will decline. The retail sector is particularly vulnerable since many retail expenditures are discretionary (for example, spending for restaurant meals, new automobiles) and because the presence of the base led the retail sector to expand more than could be justified for a community of Rantoul's size. Business for artisan/contractors will remain slow until there is a renewed demand for residential and/or commercial construction. Demand for medical, dental, legal, and other professional services, which are less discretionary, are likely to be less affected throughout the closure.

Some of Rantoul's industrial firms have plans for further expansion. This sector will supplant the military as the driving force behind the Rantoul economy if no single, very large firm comes to Chanute, such as the proposed United Airlines maintenance facility.

John C. Hamilton

Workers' Compensation Rates in Illinois

Workers' compensation insurance is sold in Illinois by open competition. An Illinois employer, required by law to provide coverage, may negotiate with any insurance company qualified to sell workers' compensation insurance in the state. The National Council on Compensation Insurance (NCCI) publishes advisory rates for each classification code that serve as the starting point for negotiating the cost of workers' compensation coverage. NCCI rate-making allows the insurance companies to share the expense of actuarially determining rates for each classification for each state. This system takes the responsibility for setting rates out of the hands of government, which sets benefit levels, and gives that responsibility to a private insurance industry group, the NCCI.

The cost of workers' compensation insurance in Illinois may be above or below the NCCI recommended rates depending on, among other things, the negotiating skill of the company seeking coverage, and the willingness of the insurance company to deviate from the advisory rates. Rates vary from state to state depending on benefit levels defined by the laws of each state and the actuarial determination of risk made by the NCCI.

Two alternatives to negotiated insurance contracts exist. Employers may self-insure; but financial strength requirements and economies of scale essentially limit the self-insurance option to large firms. On average, self-insurance probably costs between 20 and 40 percent less than the NCCI manual rates, although the deviation is great. Employers who cannot self-insure and who cannot find a company willing to insure them are put in the assigned-risk pool. Companies in this pool are assigned by lottery to insurance companies that sell workers' compensation insurance in Illinois. Assigned-risk coverage costs 20 to 30 percent more than standard manual rates. Thus, with self-insurance costs lower and assigned-risk costs higher, the average rate in Illinois appears to be the NCCI advisory rates.

The advisory rates for Illinois are published in a manual along with the NCCI-calculated rates for 40 other states. The rate classifications roughly correspond to industries. For instance, "Glass Manufacturing" with some exceptions includes all the employees at a glass factory regardless of occupation. The rates are expressed in dollars per $100 of payroll, which is equivalent to a percent of payroll. The rate-making process has evolved over the years since workers' compensation insurance was pioneered in 1910 by Dr. Alice Hamilton in Illinois.

However, the NCCI manual still lists risk classifications from another era, for example, "Ice Harvesting," presumably from frozen ponds and lakes; "Music Roll Manufacturing–perforated paper" from a time when player pianos were the rage; "Five and Ten Cent Store" and "Milk Bottle Exchange"; and"Whip Manufacturing," a buggy whip factory being the economists' standard example of obsolescence

More troubling than the anachronisms are the anomalies scattered throughout the classifications and rates. In some cases the apparently more dangerous of two closely related classifications bears the lower rate. Some classifications seem so broad as to include products, processes, and businesses with widely divergent risks. There are numerous cases in which a classification will have a higher rate than another classification in one state and a lower rate than that other classification in a second state.

The Illinois rate for "Athletic Team–Contact Sports" is 9.97 percent of payroll; the Illinois rate for "Athletic Team–Non-Contact Sports" is 14.10 percent, whereas the rates for contact sports teams are higher than the rates for non-contact sports teams in Alabama, Indiana, and various other states. In fact, in Alabama the contact sports rate is more than twice the non-contact sports rate.

The Illinois rate for "Cabinet Works–With Power Machinery" at 5.29 percent is just barely above the 5.06 percent Illinois rate for "Cabinet Works–No Power Woodworking Machinery." The risk of injury would seem to be much higher around power machinery. In Indiana a cabinet works without power equipment pays 2.30 percent while one with power equipment pays nearly double at 3.94 percent.

In Illinois a pharmaceutical manufacturer who mixes ingredients made by others would pay 3.21 percent. A pharmaceutical manufacturer who manufactures ingredients and then mixes them would pay less: 3.00 percent! Surely manufacturing and mixing ingredients involves greater injury and health risks than just mixing ingredients, and in Missouri those that simply

The views expressed are those of the author and do not necessarily reflect those of the Illinois Department of Commerce and Community Affairs

mix ingredients pay 1.76 percent while those that also manufacture ingredients pay 3.32 percent.

Whereas the anachronisms and anomalies associated with specific rates are perplexing, state by state comparisons of average rates give some insight into the relative cost of workers' compensation in Illinois. Average rates must be used with care. One of the lowest Illinois rates is $0.33 for "Clerical Office Employees Not Otherwise Classified." The highest Illinois rate is "Metal Bridges" at an astounding $139.73 per $100 of payroll! The $70.03 average of those two rates does not convey any meaningful information about the workers' compensation insurance costs of either office managers or bridge builders. In an attempt to provide meaningful comparisons, average rates for major industries were calculated for each state.

The NCCI publishes rates for approximately 262 manufacturing, 59 construction, 25 transportation, 4 office work, and 165 primarily service classifications. Within these categories an average rate for each state was calculated using rates in effect as of July 1, 1990. The results are shown in Table 1. In only one category, construction, does the Illinois rate differ from the average rate for the other 40 states by more than one-fourth of a percentage point; the Illinois rate for construction exceeds the 40-state average by 6.86 percentage points. Since these workers' compensation rates are percentages applied to payroll, Table 1 implies that construction labor costs are 6.86 percent higher in Illinois than the average of the other 40 states because of workers' compensation insurance costs.

Another grouping of states shows a problem associated with workers' compensation confronting Illinois. Table 2 shows the average rates for Illinois and the six contiguous states. In four of the five categories, the average rate for the surrounding states is well below the Illinois rate. This disparity of rates has two important effects. It makes Illinois less desirable for a business looking for a location in the region, and it subjects Illinois employers to competition from nearby firms with lower labor costs.

In order to test the economic impact and the employment ramifications of the perceived labor cost differences, the previously calculated rate differentials were used as inputs to an econometric model. The Regional Economic Model Inc. (REMI) econometric model of the Illinois economy was used. The model was built especially for Illinois and uses Illinois historical data from 1969 to the present in estimating economic relationships. The REMI model is an input/output table conjoined with a set of econometric equations. The input/output table shows from which industries and in what percentage

Table 1. Workers' Compensation Rates—Average Rates by Category, by State (by percent)

State	Manufacturing	Construction	Transportation	Office Work	Services
AL	5.03	13.28	6.73	0.35	6.12
AK	8.63	20.80	12.17	0.58	8.58
AZ	7.50	15.58	10.01	0.48	7.73
AR	4.90	11.39	7.32	0.37	5.50
CO	10.13	26.22	14.96	0.54	10.49
CT	8.75	23.28	14.62	0.45	9.47
FL	10.70	29.49	15.24	0.78	12.28
GA	7.13	15.62	10.57	0.47	7.89
HI	8.91	18.95	11.07	0.74	9.20
ID	5.89	12.16	8.08	0.37	6.41
IN	2.71	6.73	4.26	0.17	3.36
IA	4.52	12.56	7.05	0.30	5.09
KS	4.33	9.70	6.23	0.25	4.73
KY	3.38	5.09	5.44	0.13	3.34
LA	5.73	11.10	9.54	0.43	7.12
ME	9.72	25.59	15.75	0.54	10.93
MD	3.21	8.80	4.86	0.20	3.39
MA	10.90	21.09	20.14	0.44	10.37
MI	8.55	18.70	11.45	0.40	8.22
MN	10.32	26.81	19.83	0.61	11.70
MS	4.56	12.02	6.76	0.38	5.85
MO	5.15	9.57	6.54	0.32	5.39
MT	11.67	32.28	16.28	0.81	13.37
NE	3.91	9.48	5.81	0.21	4.29
NH	8.33	19.29	15.20	0.55	9.01
NJ	4.36	7.18	7.23	0.37	4.62
NM	7.06	16.43	10.98	0.57	8.13
NY	7.51	10.42	8.59	0.41	6.22
NC	2.91	7.34	4.55	0.20	3.61
OK	6.17	14.23	9.28	0.36	6.63
OR	12.61	31.06	17.64	0.93	14.83
RI	8.99	19.92	14.72	0.43	9.32
SC	3.90	10.83	6.65	0.36	5.19
SD	4.42	11.77	9.32	0.40	6.46
TN	4.47	11.12	6.59	0.33	5.60
TX	11.18	25.48	11.65	0.73	11.98
UT	4.26	10.11	6.26	0.22	4.93
VT	5.26	11.57	7.64	0.35	5.83
VA	3.07	9.36	5.07	0.20	3.80
WI	4.95	13.51	7.15	0.23	5.45
40 State Avg.	6.64	15.65	9.98	0.42	7.31
IL (Rank)	6.48 (19)	22.51 (9)	10.06 (17)	0.36 (26)	7.51 (18)

Source: NCCI.

Table 2. Workers' Compensation Rates—Average Rates by Category, By State (by percent)

State	Manufacturing	Construction	Transportation	Office Work	Services
IN	2.71	6.73	4.26	0.17	3.36
IA	4.52	12.56	7.05	0.30	5.09
KY	3.38	5.09	5.44	0.13	3.34
MI	8.55	18.70	11.45	0.40	8.22
MO	5.15	9.57	6.54	0.32	5.39
WI	4.95	13.51	7.15	0.23	5.45
6 State Avg.	4.88	11.03	6.98	0.26	5.14
IL	6.48	22.51	10.06	0.36	7.51

amount a given industry will buy its inputs and to which industries the given industry will sell its output. The econometric equations add a time dimension and allow the model to show effects in units such as dollars and jobs.

Two simulations were run. The first gauged the effects of a construction labor cost reduction equal to the difference between the workers' compensation construction rates for Illinois and the 40-state average. The second estimated the effects due to the differences between Illinois and the contiguous states for all five categories: manufacturing, construction, transportation, office work, and services. The results of the simulations are shown in Table 3.

The impact shown in Table 3 includes both direct and indirect effects. Since the first simulation involved just a reduction of construction labor costs, the results are concentrated in the construction industry as shown by the employment numbers. The effects are more evenly spread across all industries in the second simulation; even though construction labor costs were reduced dramatically, there were also labor cost reductions included for the other industries.

Reducing construction labor costs by 6.86 percent, in the first simulation, results in additional construction employment of 6,668 per year over the next ten years; this is 3.2 percent of the 1990 Illinois construction employment of approximately 206,000. Reducing labor costs across the board, in the second simulation, results in estimated additional employment of 213,752 per year, approximately 4.1 percent of Illinois' 1990 total nonagricultural employment.

An employment-weighted average of the labor cost reductions in the second simulation would be approximately 2.1 percent. This 2.1 percent is less than one-third of the average annual increase (7.8 percent) in NCCI rates for Illinois between 1986 and 1990. Further perspective on the 213,752 employment increase resulting from the 2.1 percent labor cost decrease is gained by comparison to the 105,000 average annual increase in Illinois total nonagricultural employment between 1986 and 1990. It seems that a relatively small change in workers' compensation insurance rates, and thus labor costs, can produce a significant change in employment levels.

The differences that exist between Illinois workers' compensation costs and the costs in other states have been laid to many causes. Some of the differences are startling, as when it is noted that the average construction workers' compensation insurance rate is higher in Illinois than in Alaska. Often the level of benefits in Illinois has been blamed. On occasion it has been said that a concentration of more dangerous industries in Illinois is the cause. The lump sum method of paying benefits has been faulted. The pervasive use of lawyers in settling claims and the political power of the trial lawyers have also been blamed. The Scaffolding Act, in particular, has been blamed for high construction workers' compensation insurance rates in Illinois. There may be some truth in all these explanations.

One area that remains largely unexplored in the literature of workers' compensation is the rate-making process. The effects on costs have been mixed in those states that operate their own workers' compensation funds and set their own rates. It may be that Illinois could achieve lower rates and employment gains by closer supervision of the rate-making process of the NCCI.

Table 3. Economic Impact of Labor Cost Reductions—Ten Year Averages, 1991–2000 (thousands of dollars)

	Reduce IL Construction to 40 State Average	Reduce All IL Categories to Regional Averages
Employment	42,418	213,752
Manufacturing	3,020	17,562
Construction	6,668	16,770
Transp., Comm., Pub. Util.	1,418	9,151
Fin., Ins., Real Est., Gov.	6,023	31,781
Services, Trade	24,814	137,279
Gross State Product	$2,830,260	$12,869,806
Personal Income	$2,496,491	$12,206,946
State and Local Taxes	$262,131	$1,281,729
State	$139,803	$683,589
Local	$122,328	$598,140

Nigel M. Healey

A Beginner's Guide to Corporate Barter

Nineteenth century economists traditionally described money as a "veil" behind which the real world conducted its day-to-day business. John Stuart Mill, for instance, frequently wrote about "money illusion," reminding his readers that, in the final analysis, goods are traded for goods with money being nothing more than a "medium of exchange." But Mill and his contemporaries never questioned the crucial importance of the lubricating role played by money, recognizing that in its absence the "double coincidence of wants"[1] would be so rare that trade would be impeded and the economic system would collapse.

The use of money is so ingrained in thinking and practice that it comes as something of a shock to discover that an increasing number of companies are beginning to trade—quite literally—goods directly for goods. In the United States, there are now over 150,000 companies actively swapping goods and services. Estimates of the total value of products bartered each year range as high as $100 billion, with household names like Goodyear, Amoco, Caterpillar, Xerox, Pan-Am, Chrysler, and Hilton amongst the better-known corporations involved. One of the most well-publicized barter deals of the 1980s concerned the 1984 Los Angeles Olympic Games, when the US Olympic Committee traded the promotional value of the Olympic logo for, among other things, Levi Strauss clothing, Converse shoes, General Motors cars, free travel with United Airlines, a swimming pool, and Fuji color film.

This article examines the recent growth of a phenomenon that appears to turn established economic theory on its head and that, while presently little used by non-American companies, shows every sign of spreading east and west during the 1990s.

Countertrading

For many US companies, bartering is not actually a recent development at all. Third world governments strapped for "hard currency" have long obliged US exporters to accept locally produced goods rather than cash in exchange for their products: two-thirds of all US exports of jet aircraft are paid for "in kind"; many African governments, struggling with heavy external debt obligations, routinely pay for US goods with deliveries of raw materials like copper and zinc; the Soviet Union buys its fizzy drinks from PepsiCo in exchange for locally manufactured vodka.

What is new, however, is that the present upsurge in bartering has been in goods-for-goods deals between one US company and another, rather than in the well-established area of international countertrading. And while it clearly makes commercial sense for a major US exporter like 3M to swap its computer products for Tanzanian copper rather than lose the sale altogether, the rationale for the same company voluntarily seeking out barter deals in the United States itself is less easy to fathom.

The Role of Barter-Brokers

One factor that explains the increasing willingness of companies to dabble with barter is the growing number of specialized "barter-brokers." These intermediaries take over the role of finding a "match" for their clients; and by using large computerized databases they can locate potential exchange partners quickly and cheaply, thereby eliminating a large proportion of the "transactions" costs associated with traditional barter. This high level of sophistication also enables such brokers to sidestep another limitation of simple barter, namely the need to match precisely a company offering X tons of good A and requiring Y liters of good B with a second company looking for X tons of A with Y liters of B to spare (see the table). The final deal might actually be multidimensional, involving a number of companies.

[1] The "double coincidence of wants" simply means that for a pure barter transaction, Company X must find another company which wants exactly what X has to offer and is prepared to give in exchange exactly what X requires.

	Acceptances by:			
	Company X	Company Y	Company Z	Total
Offers by:				
Company X	—	15A	5A	20A
Company Y	20B	—	15B	35B
Company Z	40C	10C	—	50C
Total	20B + 40C	15A + 10C	5A + 15B	20A + 35B + 50C

Consider the following scenario, in which the relative values of goods A, B, and C are in the ratios 1 : 2 : 4 (that is, 1 unit of good A is worth 2 units of good B, and so on).

In this example, Company X offers to trade an amount (20A), which exceeds the "buying" powers of Companies Y and Z individually, which, at the given rates of exchange (1A = 2B = 4C), are 17.5A and 12.5A, respectively. In the final deal constructed by the barter-broker, X supplies 15A to Y and 5A to Z, receiving 20B and 40C in exchange. Notice that while the final value of the goods received by Company X is equal to the value of goods supplied, its transactions with Y and Z taken separately do not balance out; Company X supplies 15A to Y, getting in return only 20B (worth 10A); on the other hand, Company X gives Z only 5A, getting back 40C (worth 10A). Company Y similarly sends Z 15B, receiving only 10C (worth 5B) in return, to offset its net gain on its trade with X.

In this barter deal, which is the simplest possible package involving more than two parties, the barter-broker not only avoids the need to find a single partner for Company X prepared to take the full amount of 20A offered, but also constructs an interlocking set of transactions, which means that none of the "bilateral" exchanges (that is, between X and Y, X and Z, and so on) needs to be an exact match either. In practice, barter-brokers regularly reach highly complex deals involving large numbers of contracting parties, with the only limiting constraint being that each emerges from the exercise having secured an equivalent value of goods it wants in return for whatever goods it offered.

The Function of Trade Credit

However large the number of clients a broker has, and however imaginative and complicated the interwoven deals, the problem of the "double coincidence of wants" can rarely be completely exorcised. It may be, for example, that Company X in the scenario above simply does not need either good B or C at the present time. Had it sold its product for cash in the normal way, it could have held the money proceeds obtained until it was ready to buy at some point in the future. While improved matching can reduce the need for a medium of exchange in trade, it remains the fact that money performs an important additional function as "a store of value," smoothing out imbalances between what companies have to sell and what they need to buy at a particular moment.

Many brokers solve this problem by creating their own "barter-money" in the form of trade credit (or "trade dollars"). In effect, they act as "principals" in many of the deals they put together, standing ready to "buy" goods for which they cannot find immediate buyers in return for trade credits and taking the goods into their own stocks (or "cafeteria lists"). The recipient company can then use the trade credits to "buy" either goods from the broker's stock at some later date or goods offered by another of the broker's clients. Such internal systems are most formalized in a barter exchange, in which a broker organizes his or her client companies into a "club." In the most developed barter exchanges, members "sell" all the goods they have to offer to the broker; in return, their account is credited with trade dollars, which they then use to purchase items from the broker's constantly changing cafeteria list.

In a barter exchange, the outstanding volume of trade credits is normally equal to the value of the broker's stocks. In principle, however, there is no reason why the broker should not "create" extra trade dollars, acting like a private bank to grant loans to customers temporarily short of funds. To the extent that the extension of trade credit has underpinned the growing popularity of barter-brokers, modern barter is not "barter" in the strict sense at all, but trade lubricated by privately issued "money." But from the point of view of participating companies, the arrangement still essentially represents a trade of goods for goods, since the value of accumulated trade credits can only be realized by redeeming them for goods from stocks held by the broker.

The Marketing Advantages of Barter

While the use of specialized brokers and trade credit makes barter easier, these two factors can never, of themselves, make barter positively preferable to straight cash sales. Company X in the scenario above could, for example, have sold 15A to Y and 5A to Z for cash and used the proceeds to buy the quantities of goods B and C that it needed, thereby saving itself the cost of the broker's services. Since commissions in barter-brokering are often high (around 10 percent of the value of the deals arranged), there must be some additional benefit from swapping goods for goods through a broker that could not have been gained by more conventional means.

That extra dimension is provided by the market advantage enjoyed by brokers. If brokers simply matched corporate clients with the companies that they normally supplied, the exercise would be pointless. What the brokers do, in contrast, is to seek out swaps with potential customers in areas far removed from their clients' normal spheres of operation, so bypassing the middlemen, wholesalers, distributors, retailers, and other obstacles that would normally stand between the companies being matched. In this way, the broker earns his or her commission by "creaming off" part of the difference between the price that the seller would normally have

received and the price the buyer would normally have paid.

The opportunity for profitable barter-broking most usually arises when a company finds itself with excess stock that it could only sell through its everyday channels by offering at a hefty discount. (Note that the company might also damage its longer-term market position by being seen to be "dumping" inferior goods on the market.) But suppose that the goods have been devalued largely as a result of changes in market fashion; they might still have value to a buyer somewhere, uninterested in the cosmetic trimmings, for example, on a consumer product, and concerned only with purchasing functional equipment at the lowest cost. Enter the barter-broker: if such a buyer can be matched up with the original seller, then the former might be prepared to offer goods and services with a higher value than the seller could have obtained through a normal cash sale, while still getting the stock at a much lower price than through the market-place.

Mutual Gains from Barter

A simple example illustrates the mutual benefits of barter. Suppose XYZ Hoses, Inc. has been left with unwanted stocks (say 500 units) of conventional plastic hose pipes, following an unanticipated switch by consumers to newer, "flatpack" pipes. Under these new market conditions, XYZ could only sell this stock to wholesalers by slashing its factory price from $10 to, say, $5 each. It asks a broker to look for possible swaps, and the broker's inquiries turn up ABC Inns, a hotel chain on the other side of the country that is prepared to offer $5,000 worth of hotel accommodations in exchange for the hose pipes, with the intention of using the goods acquired in their hotels' grounds. XYZ accepts the offer, recognizing the potential of the accommodations for promotional purposes and staff incentive schemes.

Now look more closely at the deal. XYZ Hoses, Inc. has obtained hotel bookings that would have cost $5,000 in the open market for the exchange of 500 outdated hose pipes with a "market" value to the company of only $2,500 (that is, $5 x 500 units). ABC Inns has secured 500 perfectly functional hose pipes, which—even after allowing for XYZ's cut in factory price—would have cost, say, $6,000 through a market outlet. A large proportion of the hotel rooms supplied in return, on the other hand, would have otherwise been unlet, and so overall the accommodations exchanged only have a value to ABC of, say, $3,000. XYZ, therefore, emerges from the barter deal $2,500, and ABC $3,000, better off. The broker's commission comes out of these gains.

Neither company would have been able to locate the other without the assistance of the broker, since it is precisely the fact that the two companies would not have dealt with each other in the normal course of events that makes a profitable trade of goods for goods possible. Nor would it have been worth the individual company's investing resources in its own barter-broking division, since the opportunities for such trade arise only infrequently. Like advertising agencies and professional "head-hunters," barter-brokers perform functions for their corporate clients that the latter choose not to bring "in-house," because their need for the service is too limited to make such a course of action worthwhile.

Conclusions

The growth of corporate barter is as remarkable as it is difficult to explain. While innovations in information technology and the use of trade credit have considerably reduced the costs associated with bartering goods for goods, these factors do not, of themselves, account for this new phenomenon. On closer inspection, it becomes clear that barter is profitable on occasions where the market fails to function efficiently, so allowing brokers to exploit their informational advantage to match up the needs of two or more companies and so cut out normal distribution costs. Such situations arise most frequently when companies have surplus stock (sometimes termed "distress merchandise") that can realize a better "price"—in terms of goods received—if placed with a carefully selected barter partner than if it is sold through conventional market channels.

William R. Bryan

Services and the Services-Producing Industries in Illinois

Over the years, a distinction has been made between economic activity leading to the production of a tangible object or good, and activity leading to the production of an intangible service. This distinction arose at a time when, for the most part, markets were places where commodities were exchanged. In contrast, services were supplied within the home, or otherwise within a nonmarket context. The thoughts and writings of the classical economists were shaped within such an historical setting. Indeed, Marxian national income accounting has continued such a distinction, to the point of disregarding much of what western economies include within their service sectors. Whatever its underlying merit, if any, the distinction between goods and services continues to be made in economic data. Employment in goods-producing industries in Illinois rose 2.8 percent in the five years ending in 1989. By comparison, employment in services-producing industries expanded 13.6 percent. It may be of interest to acquaint ourselves with this important and dynamic part of the Illinois economy.

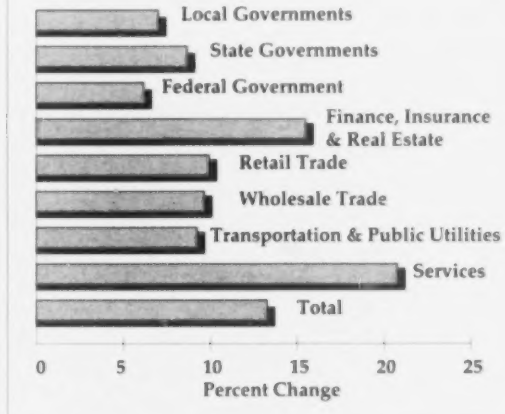
The services-producing industries, which make up more than three-fourths of total nonagricultural employment in Illinois, consist of several different types of activities. The most commonly identified general categories include transportation, trade, finance, and government. But within the services-producing industries, there is a specific collection of activities designated as the services sector. Moreover,the services sector is the largest single component of the services-producing industries,

Chart 1. Employment Shares in Services-Producing Industries: 1989

employing nearly one-third of those working in the services industries (see Chart 1). In addition, it is the most rapidly growing area within these industries (see Chart 2). The services sector consists of a potpourri of establishments, activities, and organizations, including hotels and lodging, personal services (see table), business services (see table), auto and miscellaneous repair, motion pictures, amusement and recreation, health services, legal services, educational services, social services, museums, membership organizations, and so on.

Measured in terms of employment, health services constitute the largest single category of activities within the services sector. Health services accounts for 28.3 percent of total services employment in Illinois. Business services, which includes advertising, personnel supply, and computer and data processing, accounts for 18.7 percent of total services employment. The most rapid employment growth during the 1984–1989

Chart 2. Employment Growth in Services-Producing Industries: 1984–1989



period occurred in motion pictures; but this component accounts for just over 1 percent of the total. Rapid employment growth has also occurred in auto and miscellaneous repair.

The transportation sector consists of a readily identifiable collection of activities. Those activities involve the movement of tangible objects from one place to another. Included within the transportation category are railroad transport, local (bus and taxi) and interurban transport, trucking and warehousing, air and water transportation, transportation services, and pipelines (except natural gas). Because transportation has been the subject of regulation and has often taken the form of a public utility, the data relating to it are combined with data relating to other public utilities such as communications and electric, gas, and sanitary services. Employment in transportation and public utilities in Illinois accounted for 8 percent of employment in services-producing industries in 1989. But employment in transportation, which expanded 9.4 percent during the 1984–1989 period, has grown more slowly than in the services-producing sectors in general.

The important economic activity consisting of buying and selling, comes under the heading of trade. Employment in the trade sector constitutes nearly one-third of employment within the services-producing industries in Illinois. Within the trade sector, wholesale trade consists of buying and selling by middlemen. Employment in wholesale rose 9.7 percent in the 1984–1989 period. Retail trade consists of sales to the final consumer. Included among the many enterprises within this sector, which makes up the bulk of employment within trade, are restaurants and bars, automotive dealers, food stores, building materials and garden supplies stores, apparel and accessory stores, and so forth. Employment in retail establishments increased 11.6 percent in the period 1984–1989, somewhat more slowly than in the services-producing industries generally.

One of the most rapidly growing components of these industries in Illinois and in the nation consists of that collection of enterprises included in the finance, insurance, and real estate sector. This category includes banks, credit agencies other than banks (savings and loan associations, mutual savings banks, credit unions, and so on), security and commodity brokers, holding companies, investment offices, insurance agents and brokers, insurance carriers, real estate agents and brokers, and so forth. Employment in finance, insurance, and real estate makes up less than 10 percent of the total, but has grown 15.6 percent since 1984.

Government is the most slowly growing area within the services producing industries in Illinois. Total government employment grew 7.3 percent from 1984–1989. Employment by the federal government in Illinois grew 6.2 percent. State government employment (including state-owned educational institutions) expanded 9.2 percent in the 1984–1989 period; local government employment (including primary and secondary schools) rose 6.9 percent.

Employment in the Services Sector in Illinois

	1989 (thousands)	Share of Total (%)	% Change 1984–1989
Total	1,278.8	100.0	20.9
Hotels and lodging	52.8	4.1	26.6
Personal services	51.3	4.0	8.0
Laundry and garment services	18.7	1.5	1.6
Photographic services	NA		
Beauty shops	17.1	1.3	
Funeral services	NA		
Business services	239.7	18.7	14.7
Advertising	18.9	1.5	11.2
Credit reporting and collection	NA		
Mailing, reproduction, & stenographic	18.4	1.4	
Services to buildings	33.2	2.6	
Personnel supply	64.2	5.0	
Computer and data processing	32.6	2.5	
Miscellaneous business services	NA		
Auto repair	41.0	3.2	29.3
Miscellaneous repair	16.5	1.3	26.0
Motion pictures	13.8	1.1	58.6
Amusement and recreation	38.0	3.0	11.8
Health services	361.7	28.3	10.0
Physicians offices	53.9	4.2	
Dentists offices	22.8	1.8	
Nursing and personal care	61.1	4.8	15.5
Hospitals	194.1	15.2	2.9
Medical laboratories	5.4	0.4	
Outpatient care facilities	7.5	0.6	
Legal services	44.4	3.5	
Educational services	82.6	6.5	4.3
Social services	76.1	6.0	40.9
Museums		0.0	
Membership organizations	97.9	7.7	
Miscellaneous	NA		

Illinois Business Statistics

An exceptionally weak real estate market has been cited as a primary cause of the current recession, which began during the last half of 1990 and which is expected to continue at least through the first half of 1991. Some regions of the country, most notably the northeast, have seen home prices fall, new home construction come to a standstill, and office and retail building occupancy rates plummet.

In Illinois, residential housing construction has thus far been more severely affected by the recession than nonresidential housing construction (Chart 1). The number of residential housing units built in 1990 was 35,991, down 10,967 units (23.4 percent) from 1988 and down 4,344 (10.8 percent) from 1989. The value of these units fell $566 million (14.4 percent) between 1988 and 1990 (Chart 2). 1,345 fewer (12.4 percent) nonresidential buildings were constructed in 1990 than in 1988, 1,246 (11.6 percent) fewer than in 1989.

Mortgage lending rates have fallen substantially since early 1990, and there are early indications are that the US residential housing market is beginning to rebound as a result. Nonresidential construction is expected to remain weak, however, because of overbuilding.

Chart 1. Residential and Nonresidential Housing Construction (number of units)

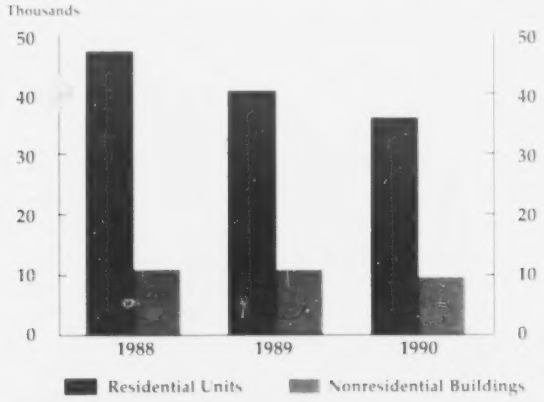
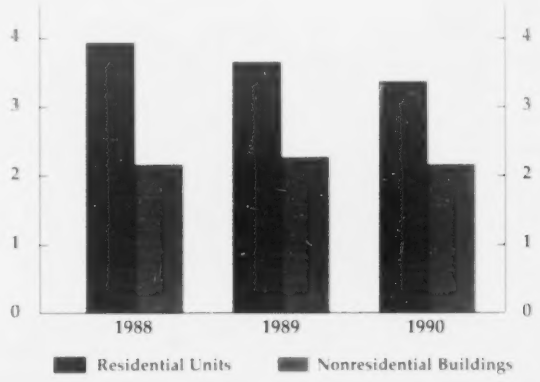


Chart 2. Value of Residential and Nonresidential Housing Construction ($ billions)



Historical Statistics

	One Year % Change	Dec. 1990	Nov. 1990	Oct. 1990	Sept. 1990	Aug. 1990	July 1990	Dec. 1989
Building permits (thousands)								
Residential housing units	6.42%	1,,524	2,,350	2,,767	3,,178	3,,265	3,,167	1,,432
Value of residential units	-16.83%	158,466	201,547	251,262	260,938	299,246	298,885	190,536
Value of nonresidential housing								
Industrial buildings	-40.19%	21,666	14,579	28,648	32,910	33,601	41,137	36,222
Office, banks, and professional buildings	39.52%	27,649	27,510	35,060	27,969	111,955	23,086	19,817
Stores and other mercantile buildings	-30.75%	52,553	56,155	44,310	43,765	27,013	39,463	75,891
Other	163.81%	6,210	4,838	6,667	6,158	6,054	4,672	2,354
Consumer price index (1982-1984=100)								
United States	6.11%	133.8	133.8	133.5	132.7	131.6	130.4	126.1
North Central US	5.68%	130.2	130.4	130.0	129.4	128.4	126.9	123.2
North Central/pop. more than 1,200,000	5.79%	131.5	131.7	131.1	130.7	129.9	128.6	124.3
North Central/pop.360,000 to 1,200,000	4.86%	129.0	128.9	129.1	128.3	127.6	125.8	123.0
North Central/pop. 50,000 to 360,000	6.09%	130.7	130.9	130.8	129.9	127.8	126.2	123.2
North Central/pop. less than 50,000	5.81%	125.7	126.2	125.8	125.0	124.1	122.6	118.8
Chicago	6.40%	134.6	134.2	133.3	133.8	133.2	132.0	126.5
St. Louis	NA	NA	130.4	NA	129.9	NA	128.0	NA

Forecast Statistics

Personal Income (millions of dollars, seasonally adjusted at annual rates)

	1989	1990:I	1990:II	1990:III	1990:IV*	1991:I	1991:II	1991:III	1991:IV	1992:I
Total personal income	$219,449	$227,415	$229,765	$231,339	$237,875	$240,882	$244,505	$248,388	$252,422	$256,454
Total nonfarm personal	160,164	163,892	166,541	168,110	172,464	174,252	176,751	179,407	182,418	185,233
Total private nonfarm	140,267	142,666	144,952	146,505	150,482	151,990	154,179	156,638	159,239	161,805
Mining	1,048	1,115	1,060	1,114	1,160	1,166	1,179	1,193	1,202	1,207
Construction	9,687	10,016	9,774	9,604	10,163	10,369	10,501	10,744	10,951	11,180
Manufacturing	33,301	33,332	33,533	33,419	34,861	34,726	34,866	35,102	35,341	35,629
Durable	20,704	20,388	20,672	20,548	21,472	21,255	21,276	21,396	21,544	21,719
Nondurable	12,597	12,944	12,861	12,871	13,389	13,471	13,590	13,706	13,797	13,910
Transp. & pub. utilities	11,743	12,101	12,480	12,583	12,537	12,607	12,719	12,854	13,035	13,191
Wholesale trade	13,315	13,395	13,459	13,512	13,811	13,982	14,203	14,405	14,623	14,851
Retail	14,342	14,423	14,593	14,730	14,877	14,913	15,161	15,392	15,645	15,743
Finance, ins. & real estate	13,870	14,196	14,655	15,017	14,887	14,952	15,105	15,303	15,546	15,790
Services	42,272	44,088	45,398	46,426	48,186	49,273	50,445	51,645	52,895	54,213
Government	19,897	20,528	20,848	20,863	21,983	22,262	22,572	22,768	23,179	23,428

Gross State Product (millions of dollars, seasonally adjusted at annual rates)

	1989	1990:I	1990:II	1990:III	1990:IV*	1991:I	1991:II	1991:III	1991:IV	1992:I
Total	$258,376	$264,281	$270,007	$272,982	$279,038	$282,485	$286,199	$290,139	$294,137	$298,220
Total private nonagricultural	231,145	236,142	240,338	243,302	249,397	252,552	255,952	259,560	263,223	266,964
Mining	1,781	1,896	1,802	1,894	1,607	1,560	1,520	1,483	1,445	1,399
Construction	11,024	11,398	11,123	10,929	11,463	11,615	11,818	12,020	12,206	12,381
Manufacturing	49,109	49,301	49,528	48,383	48,575	48,357	48,301	48,423	48,557	48,733
Durable	27,103	26,688	27,060	26,897	25,991	25,606	25,389	25,355	25,329	25,361
Nondurable	22,007	22,613	22,468	22,486	22,585	22,751	22,913	23,068	23,228	23,371
Transp. & pub. utilities	25,835	26,622	27,456	27,903	28,254	28,588	28,941	29,293	29,636	29,979
Wholesale trade	22,530	22,664	22,773	22,862	23,598	23,849	24,121	24,404	24,676	24,954
Retail trade	23,564	23,697	23,976	24,201	25,487	25,872	26,276	26,688	27,102	27,531
Finance, ins. & real estate	47,296	48,408	49,974	51,208	53,406	54,383	55,264	56,156	57,113	58,071
Services	50,008	52,156	53,706	54,922	57,006	58,328	59,710	61,093	62,488	63,916
Government	23,100	23,833	24,205	24,222	25,088	25,378	25,674	25,915	26,273	26,543
Agriculture	4,131	4,306	5,464	5,458	4,553	4,555	4,573	4,664	4,641	4,713

Illinois Employment Forecast (in thousands, seasonally adjusted)

	1989	1990:I	1990:II	1990:III	1990:IV*	1991:I	1991:II	1991:III	1991:IV	1992:I
Total nonfarm employment	5,178.8	5,208.8	5,218.5	5,212.6	5,200.1	5,181.1	5,158.9	5,151.3	5,154.8	5,161.9
Total private nonfarm emp.	4,441.1	4,464.6	4,466.7	4,468.6	4,452.1	4,431.3	4,407.1	4,402.6	4,404.9	4,415.3
Mining	19.8	19.6	19.8	19.9	20.2	20.7	20.2	20.1	20.2	20.7
Construction	209.7	213.0	207.4	205.4	202.7	201.2	193.5	190.6	187.9	189.1
Manufacturing	981.2	979.8	980.3	976.9	958.1	944.7	934.3	931.8	930.5	931.9
Durable	598.3	596.4	597.1	593.5	580.8	571.4	564.1	563.6	564.0	565.8
Primary metals	56.3	56.2	56.4	56.1	54.7	53.0	51.3	50.7	50.4	50.3
Fabricated metals	107.2	106.3	106.3	106.2	103.6	101.5	99.8	99.6	99.7	100.2
Nonelectrical machinery	154.2	155.5	155.3	155.2	151.0	147.4	144.5	144.4	143.7	143.7
Electrical machinery	118.4	117.7	116.6	115.6	115.8	116.9	119.1	121.8	124.2	126.9
Nondurable	382.9	383.3	383.3	383.4	377.2	373.3	370.2	368.2	366.5	366.1
Food & kindred products	90.2	90.2	89.9	90.7	88.8	87.7	86.7	85.8	84.6	83.9
Printing & publishing	112.8	112.9	112.9	112.3	109.4	107.8	106.6	105.4	104.3	103.6
Chemicals & allied prod.	61.1	61.5	61.7	61.9	61.8	61.6	61.5	61.5	61.5	61.5
Transportation & pub. utilities	304.4	306.3	306.3	306.9	303.6	302.0	300.0	299.3	298.3	298.4
Wholesale trade	374.1	376.0	377.1	375.6	374.0	372.6	370.3	368.7	368.5	368.6
Retail trade	900.5	907.3	906.8	906.7	905.1	895.9	893.6	893.6	892.7	891.8
Finance, ins. & real estate	372.4	373.1	373.0	373.1	374.1	373.7	372.0	370.8	371.1	371.0
Services	1,278.9	1,289.5	1,295.9	1,304.0	1,314.2	1,320.4	1,323.2	1,327.7	1,335.6	1,343.7
Government	737.7	744.2	751.8	744.0	748.0	749.8	751.8	748.7	749.9	746.6

*Forecast begins

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Summer 1991 / Volume 48 / Number 2

Contents

3 *Price Discrimination and the Financial Aid Process*
Paul C. Bishop and Peter F. Colwell

9 *Autonomous Changes in the Federal Budget*
William R. Bryan

14 *Vacation Travel and Retirement Location*
Raymond K. Oldakowski and Diane O'Rourke

18 *Illinois Business Statistics*

Illinois
Business
Review

Summer 1991 / Volume 48 / Number 2

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Price Discrimination and the Financial Aid Process

Rapid increases in the price of attending college have been an important aspect of the changing financial landscape faced by families with children. Administrators at public and private institutions of higher learning have defended the increases as responses to rising costs of providing education services. The increases have been so severe that even households with the foresight to have planned ahead often find their financial resources inadequate when college bills come due. Students and their families therefore must rely increasingly on outside assistance to supplement their incomes and accumulated savings; loans and need-based financial awards are the two most widely available sources of such assistance. Loans are generally obtained through government programs, while other types of aid are provided by sources ranging from civic groups to the schools themselves. The type of financial aid offered directly by a school is typically a reduction in tuition. College administrators suggest that this type of assistance represents subsidies from their endowments to needy students. In fact, however, the administrators' eagerness to provide financial aid is subject to a much different interpretation. It may instead represent behavior designed to maximize profits.

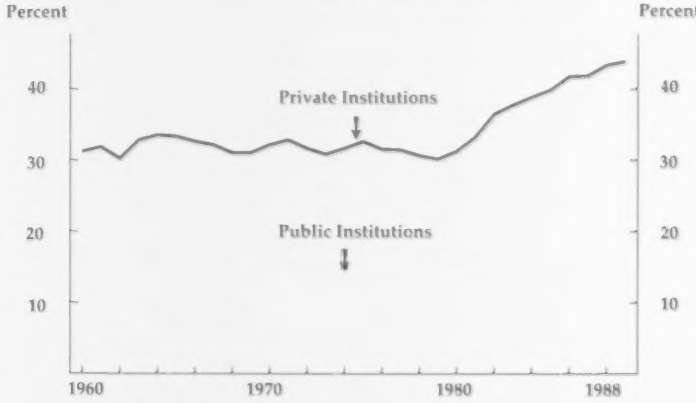
Economic profit is what is left over after the cost of production is subtracted from revenue. Suppose that some entity such as a firm or a university incurs costs that are unrelated to its production process (e.g. it buys a yacht). In preparing an income statement, the accountants would declare that profits have been reduced by the amount of the purchase. In contrast, the economist will declare that the profit from the production process is higher than the accountants' declaration by the price of the yacht. Economic profit can be positive, negative, or zero. Thus saying that an entity is behaving in a manner consistent with the maximization of its profits does not mean that profit is high or even positive.

One form of behavior that is consistent with profit maximization is called *price discrimination*. Price discrimination is the practice of charging different buyers different prices, according to how responsive various consumers of the particular good or service are to a change in its price. The ability to offer need-based financial aid (as opposed to merit and special ethnic scholarships) and changes in the demand for higher education have provided incentives for colleges and universities to engage in price discrimination. Price discrimination may, in turn, be one reason for the rising inflation-adjusted price of higher education observed in recent years; such an explanation is consistent with higher education price increases of more than 10 percent annually during a period when the general price level has changed by less than 7 percent annually.

Price discrimination is a term that can elicit emotional responses from those who do not understand its meaning. In this context, the word discrimination should not be taken to mean any kind of difference in treatment of individuals based on their gender, nationality, or ethnic background. The term price discrimination might be less troubling if the noneconomists understood it to mean differences in prices charged across various groups of consumers.

The first section of this article reviews the levels of tuition charged by both private and public institutions of higher education over the last two decades. The second section

Chart 1. College Expenses as a Percentage of Median Family Income



Source: *Digest of Education Statistics*, U. S. Department of Education.

provides a more detailed explanation of price discrimination. The third section contains a conclusion with a summary of our findings.

Trends in the Price of Tuition

Since 1980 the average annual increase in tuition has exceeded 8 percent at public, four-year institutions and 10 percent at private colleges. The average annual rate of inflation over that period has been approximately 6.5 percent. Taken together, these facts imply that the price of a college education, measured in inflation-adjusted dollars, has increased.

A more interesting question, however, is whether families today find it more difficult to pay for college than did families in earlier decades. One measure of the *burden* of the price of attending college is the percentage of median family income spent in meeting outlays for tuition, room, and board at public and private institutions of higher learning. Chart 1 illustrates these percentages for both types of institutions. With a few brief exceptions, between 1960 and 1979 the stated price of a public university education was a decreasing percentage of median family income. Tuition, room, and board accounted for approximately 16 percent of median income in 1960; by 1979 the figure had fallen to less than 13 percent. However, the trend reversed in the late 1970s; the most current figures available show stated total student charges at public institutions to equal approximately 15 percent of median family income. The story for private institutions is quite different. The 1960–1979 ratio of the price of a private college education to median income fluctuated between 30 and 34 percent. Then between 1979 and 1987, the burden increased by more than one third, from approximately 30 percent to more than 43 percent of median family income. An education at a private institution appears to have become far more expensive, relative to the resources available to most students and their parents, than it was during the last three decades.

Yet while educational institutions have raised prices, they have also increased the amount of financial aid that they provide directly to students. Chart 2 illustrates the trends in financial assistance provided by private and public colleges. During the 1979–1986 period, college-administered scholarships and fellowships increased by 117 percent, far in excess of the increase in the price of attending college; the total rose from approximately $2.2 billion to $4.8 billion.

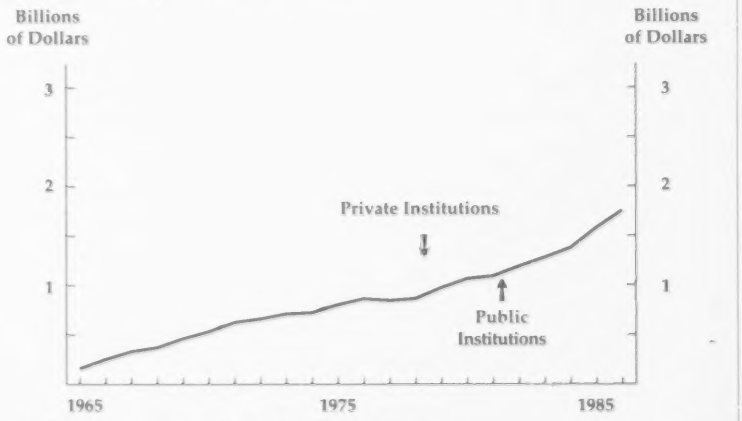
The 117 percent total increase does not represent equal relative increases in financial aid by public and private institutions. Scholarships and fellowships offered by public universities increased by more than 80 percent, while the price of attending these institutions increased by an equivalent percentage. Privately administered institutions levied a sharper average increase in tuition and fees, approximately 108 percent over the period, but at the same time their financial aid outlays grew by nearly 146 percent. Thus, the burden of paying for college has been held in check, to some degree and for some students, by direct financial assistance from the colleges and universities.

Still, it is likely that families today see figures such as those displayed in Chart 1 and feel that the burden has increased noticeably, particularly with respect to public universities, for which the 1960–1979 period was a time of declining relative prices. It is therefore understandable that parents and students worry about the affordability of higher education. Of course, the figures shown in Chart 1 are prices paid by those who do not receive financial assistance. The typical student understands that direct aid can help to keep the price of education within his family's financial resources. What this student may not realize is that the pricing system in which financial aid plays a major part may actually increase the financial resources of the school offering the assistance.

An Alternative Explanation

The conventional wisdom holds that hefty tuition increases, particularly at private schools, are the result of cost increases. The suggestion is that maintaining the physical and human educational infrastructure has proven increasingly costly,

Chart 2. Scholarship and Fellowship Awards



Source: *Digest of Education Statistics*, U. S. Department of Education.

The Mechanics of Financial Aid

Financial aid programs ostensibly are designed to assist students of modest means toward the goal of attending college. As part of the process of securing financial aid, prospective students and their parents must submit detailed financial disclosure statements. The purported purpose of disclosure is to allow a college to judge the capacity of an applicant's family to assist with paying education bills and to calculate any difference between expected outlays and available resources.

The most important dollar figures are "financial need" and "family contribution." Family contribution is the amount of money that the student and parents are deemed able to contribute toward paying for the education service. The figure is based only on the family's resources; it is not affected by the price of attending a particular college or university. If the price at a particular institution is greater than the family contribution total, then financial need is deemed to be present. Even if financial need exists, however, the student's likelihood of receiving assistance, and the amount of any aid received, depend on characteristics of the institution to which application is made.

The computation of family contribution is based on the assumption that the student and his or her parents derive current income from wages or salaries and from returns earned on the net worth of assets. A parent's total income is adjusted for such factors as state and federal taxes, medical expenses, family size, and the number of children in college. The adjusted total income is referred to as "available income." The net worth of assets is deemed to be available as collateral for loans to pay for college. Net worth is calculated as the sum of savings, home equity, equity in other nonfarm and nonbusiness real estate or other investments, and the adjusted net worth of farms or businesses owned. The system excludes a certain portion of parental net worth (increasing with the age of the parents) from consideration in the calculation of the family contribution. If total net worth exceeds this excludable amount, then 12 percent of the balance, termed the "income supplement" from assets, is judged to be available to assist the student in paying for college. The "available income" plus the "income supplement" constitutes the "adjusted available income," on which the expected parental financial contribution is based. The contribution is a portion of the "adjusted available income;" this portion increases from 22 percent to 47 percent as income rises.

An important part of the computation for a self-employed parent is the assessment of the adjusted net worth of a farm or business. Because such an asset is likely to be illiquid, and may be the only source of livelihood for the household, its net worth is adjusted in the process of computing the income supplement. If the family's net worth in such an asset is less than $65,000, then 40 percent of that amount is included in the overall net worth total; the figure rises to 100 percent for net worth of $330,000 or more.

Calculations based on the student's own income and assets are similar, although the rates of assessment are much greater. Annual after-tax wage and salary income is included at a rate of 70 percent or $700, whichever is greater. In the computation of the income supplement, 35 percent of the net worth in any assets the student owns is included, with no excludable portions and no adjustment in the net worth of a farm or business.

Income is imputed to certain assets to derive the "income supplement." While this procedure is valid for assets that produce no explicit income, such as owner-occupied housing, it amounts to double counting of income from income-producing assets. Thus, investors are disadvantaged relative to those who generate income via wages and salaries.

If the purpose of the system of financial aid were to make higher education affordable, this double counting would be counterproductive. If, however, the purpose of the system is to increase the profitability of the practitioners of this art, then double counting serves a useful purpose. It discriminates against investors, who are likely to highly value the investment in human capital that is at the center of college education. Therefore, they are likely to be less price sensitive than noninvestors. As a result, it pays educational institutions to charge them more, or provide them with less financial aid.

There are other similar mistakes on the form that reflect the true purpose of the financial aid system. Suppose the family owns a farm or business. The form calls for the net worth of the land and capital to be reported. This net worth must be converted to an imputed income by multiplying by a rate of at least 4.8 percent. Even if it were not double counting to do this, the rate is too high for a real rate of interest. The error of using too high a conversion rate is much worse for other categories of assets. For these other categories, the official rate is 12 percent. Thus, the discrimination against investors is substantial.

especially amid efforts to provide the technologically sophisticated equipment and the faculty expertise expected by today's students.

The cost-based explanation of tuition increases should not be ignored; cost is an important determinant of the *supply* of any good or service. We can gain additional insight, however, by studying the *demand* for education. Changes in this demand, which reflect demographic factors, may help to explain the high levels of tuition increases. We must also consider the great reliance that many college students have come to place on need-based financial assistance, because the financial aid process is itself an important component in the explanation of the prices charged for post-secondary education.

The Demand for Education Services

Changing demographics may be one factor in the explanation of rising tuition. Because families are becoming smaller, parents are responsible for providing college funds for fewer children. Population statistics show that between 1970 and 1980 the number of US families with three or more children under the age of 18 decreased by 37.8 percent; the number then fell by an additional 11.8 percent between 1980 and 1988. The number of families with only one or two children increased by 18.2 percent between 1970 and 1980, and then grew further by 1.7 percent between 1980 and 1988. It seems reasonable to assume that as family size decreases, a family becomes less sensitive to college price increases; it is willing to pay greater tuition for each child. [1] As families become generally less price sensitive, those with the most substantial resources will without hesitation send their children to Harvard or Princeton even if these schools' prices rise significantly more than do those at other institutions. Such a preference is not surprising if the educational and social opportunities offered by elite schools are perceived as superior to those offered by less expensive institutions.

If demographic changes cause a preference for more expensive education, then elite institutions can increase tuition and capture greater profits among the group of parents with increased ability and willingness to pay for the perceived high quality. An institution that wishes to reap the benefits of these demographic changes therefore advertises considerably higher tuition prices in its catalog. Yet even though all families have presumably become less price sensitive, the number of students willing to pay the new, much higher price may be too low to fill available admission openings, and perhaps too low to provide coverage of the fixed costs of operating the school. Therefore, after charging the highest possible price to those for whom price essentially is not an issue, the institution may choose to reap even further financial benefits by engaging in price discrimination.

The Economics of Price Discrimination

There is price discrimination if a seller charges different prices to different consumers of a product that is sold in identical units. The seller can utilize price discrimination as a means of capturing different per-unit financial gains from different groups of consumers. The extent to which the seller can discriminate depends on how sensitive various consumer groups are to price changes. If a seller is successful in employing the technique, its total profits increase, because it extracts a greater total surplus from consumers than it could if there were a uniform price.

A classic example of price discrimination involves the student discount offered by many movie theaters. Suppose that the marginal cost to a particular theater owner of showing a feature film is constant at $2.00 per viewer. If the ticket price is $4.50, then there is a per-ticket contribution to profit of $2.50. Suppose that the theater owner wishes to increase attendance, but does not wish to lose the high contribution to profit provided by each viewer willing to pay $4.50. The owner should seek people who do not attend film showings, but would if the price were reduced. While specific individuals of this type cannot be identified, there may be certain identifiable groups containing large numbers of such individuals. Suppose, for example, that students constitute one such group, perhaps because of their relatively low incomes. In recognition of this perceived difference in demand, the theater owner may establish a student ticket price of $3.00. Each student ticket sale provides a $1.00 contribution to profits, so each additional regular or student ticket sold benefits the owner. The theater retains the higher contribution from the segment of the audience that is more insensitive to price than are the students, while receiving a lower, but still positive, contribution from each price-sensitive student; total profits actually increase (or total losses decrease) after the price is *reduced* for a group that otherwise would not consume.

In our analysis of price discrimination in higher education, the university or college is the price discriminating seller, and the product is a unit of education services. The concept of education service is somewhat nebulous; we might think of a unit of service as a credit hour in some unspecified course. An educational institution typically quotes a uniform tuition price per credit hour regardless of the type of course (some courses require additional lab or material fees). If every student is quoted the same per-unit tuition price in the school catalog, how is the college or university able

[1] The potential effects of demographic changes on the demand for education have been outlined in a statement by Jay Ritter in *Fortune*, October 28, 1985, p. 15.

Beating the System

Because family assets are deemed available to assist in paying for college, a higher asset value prompts a greater expected family contribution. Therefore, there is an incentive for parents and students to hide or liquidate assets (putting the proceeds into something other than savings) in order to appear to have greater financial need. Stories (perhaps apocryphal) are told of wealthy families taking European vacations in order to reduce the resources they must disclose as available for paying college expenses. The actual frequency of such occurrences is open to question; a truly wealthy family would likely find it difficult, if not inadvisable, to spend its way into a position of measured financial need.

Nevertheless, assume that spending on luxuries drains a well-to-do family's net worth and allows it to qualify for financial aid. Has such a family cheated the college (or, as is often argued, less affluent but thriftier families who qualify for less aid)? The economist's answer is, perhaps surprisingly, that they have not. Spendthrifts are probably more sensitive to education price movements. Professor Jay Ritter of the University of Illinois has suggested a reason for this sensitivity: such a household "lives for today" and places little value on the future; it therefore discounts future investment returns (including those on the investment in education) at a high rate. It is precisely toward such consumers that price discounts are most profitably targeted.

On a modest scale, it may be possible to hide resources by converting reportable assets into cars, jewelry, or collectibles; such items are not included in the inventory of personal or family assets disclosed by a student applying for financial aid. A parent could also funnel income into a qualified retirement plan or other investment that shelters income from taxes and, hence, from financial aid calculations. Such actions might allow a family of moderate wealth to obtain more assistance than that for which it otherwise would qualify. Yet while such income and asset adjustments are possible, they carry certain risks. Tax shelters could cause liquidity problems for the family in the short term, and assets that need not be disclosed may not be safe or profitable investments. Furthermore, it is not uncommon for financial aid officers to study disclosure forms for such attempts at deception and to deny financial assistance to those involved. An abrupt asset liquidation designed to reduce the family contribution might be evident from curiosities in the financial statements, such as a low asset total coupled with a high prior-year interest income.

Another area for potential abuse is the allocation of nominal asset ownership among members of a household. For example, it is not uncommon for a parent to hold an asset, such as a savings account, in the name of a child for use as a college fund. However, current financial aid formulas provide clear incentives for a family to hold college savings funds in a parent's name rather than the child's. Recall that 35 percent of a student's savings is deemed available to pay for college, while at most 5.6 percent (0.47×0.12) of a parent's savings could be considered available. In addition, there is no asset protection allowance for the student. Finally, the family might minimize its income tax liability by keeping only a small amount of savings in a dependent child's account; it is interesting that the kiddie tax provision reinforces incentives for the families of college-bound students to hold assets in the parents' names.

to employ price discrimination? It does so by offering financial assistance to reduce the price that the aid recipient must pay to receive a unit of the institution's services.

An example may help to clarify the concept of financial assistance as price discrimination. Suppose that each of two students, John and Mary, enroll in fifteen credit hours of course work at Exclusive College. John, who does not receive financial assistance, is billed $300 per credit hour for a total tuition bill of $4,500 for the semester. Mary receives financial assistance in the form of a $3,000 credit against tuition charges. Thus while her gross obligation to the institution is also $4,500, the total tuition she actually must pay is $3,000 less, or $1,500. Her effective price of education service is $100 rather than $300 per credit hour. If the marginal cost of providing the service is less than $100 per unit, then the institution receives a positive contribution to its profits by price discriminating.

Why does Mary receive assistance while John does not? Like the theater owner, the administrators of Exclusive College believe that members of certain groups would purchase services only if they could pay lower effective prices, and these administrators feel that families without considerable financial resources constitute one such group. The college designs an assistance program with awards contingent on the financial resources of the student's household, and must, therefore, select indicators of the level of the family's available resources. These indicators (perhaps

household income and net worth as measured by specified assets and liabilities) become an important part of the school's process of awarding financial aid. Thus, students must disclose in detail the family balance sheet and income statement categories requested on the application form. The completed forms allow the institution to separate applicants into various financial need classifications. Applicants who appear to have the fewest available resources are presumed to constitute the group that would least likely attend if significant aid were not provided, so these individuals are offered the greatest discount against tuition charges. Those who show greater family resources are offered less assistance, or possibly none at all.

Price discrimination is a successful undertaking for the provider of a good or service only if different groups of consumers truly exhibit different responsiveness to price change. It is therefore very important to select correctly those to whom lower prices are quoted; if there are not different levels of responsiveness, the seller simply receives fewer dollars from certain buyers who otherwise would willingly have paid the full asking price. Do less financially secure families constitute a group that is more sensitive to changes in the price of higher education services? Studies have shown that parents with lower incomes (who would tend to be those with fewer total resources available to pay for college) are more sensitive to tuition increases and decreases than are parents with higher incomes.[2] Consequently, financial strength appears to be correlated with consumers' responsiveness to tuition changes. Thus, an indicator of financial resources can serve as a measure, albeit an imperfect measure, of which students would consider enrolling in a particular college only if they were to receive financial assistance.

Conclusion

Explanations for dramatic college price increases during a period of moderate inflation have tended to focus on the increasing costs reportedly faced by educational institutions. While such supply side effects certainly have been present, colleges and universities also have come to recognize the importance of the demand side of the market and, therefore, have utilized price discrimination, in the form of financial aid programs, to increase their profits. Financial assistance constitutes a subsidy only if the amount the student actually pays is less than the marginal cost of the education service provided. Recipients of financial aid therefore typically do not drain college endowments, but rather contribute to them.

Yet if these programs have been successful, why have the participating institutions not shown noticeable improvements in their own financial positions? The answer is that educational institutions have done more than simply sustain their expenditures in constant dollar terms. We must not forget that these are nonprofit organizations, which by definition do not wish to show revenues substantially greater than costs. A college or university may reduce its accounting profits in a number of ways. For example, it may increase its administrative staff, offer more perquisites to its personnel, improve its educational infrastructure, provide scholarships based on merit or on minority affiliation, present conferences and symposia that bring recognition to the institution, and reduce faculty teaching loads. Each of these profit-reducing activities may be extremely worthwhile and perfectly justifiable within a broadened framework regarding the purposes of higher education. But they may be substantially unrelated to delivering units of educational services as popularly perceived.

If the purpose of the system of financial aid were to make higher education affordable, the accounting errors that are built into the financial aid application form, described in the sidebars accompanying this article, would not be tolerated by the education establishment. Each of these errors contributes to the university's ability to distinguish among families on the basis of price sensitivity rather than ability to pay. People who receive investment income are disadvantaged by the improper imputation of income to their assets through double counting and incorrect conversion ratios. Spendthrifts are advantaged by the lack of any attempt to measure their true ability to pay. At the same time, these errors enhance the profitability of institutions offering financial aid.

[2] Larry L. Leslie and Paul T. Brinkman give a comprehensive survey of studies on student demand in their article, "Student Price Response in Higher Education: The Student Demand Studies" in the *Journal of Higher Education*, Vol. 58, No. 2, pp. 181-204.

William R. Bryan

Autonomous Changes in the Federal Budget

There is a widely held view that the federal government takes actions to minimize cyclical variations in economic activity. In fact, the federal government articulated the nature of its commitment to maintain stability in the Employment Act of 1946 and, later, in the Humphrey-Hawkins Act of 1978. Both of the statutes express an intent to maintain reasonably full employment and reasonable price stability. In generic terms, government stabilization policy that takes the form of expenditure or tax rate change is referred to as fiscal policy. Stabilization policy taking the form of interest rate movements, or shifts in rates of growth in money or credit are referred to as monetary policy.

This article represents a discussion of fiscal policy. First, after describing problems in measuring fiscal policy, there is a discussion of one particular approach. According to this approach, there is an effort to identify that portion of changes in the status of the federal budget that reflect the more-or-less explicit spending and taxing shifts of the federal government. These shifts are referred to as *autonomous* changes in the federal budget position. Then, by way of illustrating the means by which this policy measure may be used, data are presented for the period 1970 to early 1991. Finally, there is a discussion of recent and prospective fiscal policy developments.

The Dynamics of the Federal Budget

There are some things that we believe we know about the federal budget. We believe that during any reasonably short period of time—such as a calendar year—the stronger the performance of the economy, the more the federal government's budget position will move toward surplus. Belief in this notion is based on two considerations: one, a rise in tax revenues is likely to be associated with an expanding pace of economic activity, given a set of tax laws; two, given a set of entitlements programs, the better the performance of the economy, the less likely it is that those programs will be utilized. These ideas regarding the shape of the federal budget schedule are illustrated in Chart 1 by the solid lines.

Sector Receipts and Expenditures 4th Quarter 1990

Sectors	Receipts	Expenditures	Surpluses or Deficits
Households	3892.4	3724.9	167.5
Businesses	660.6	698.3	-37.7
State and Local Govt.	721.0	695.3	25.7
Federal Government	253.3	437.6	-184.3
Foreign	—	-28.8	28.8
GNP	5527.3	5527.3	0.0

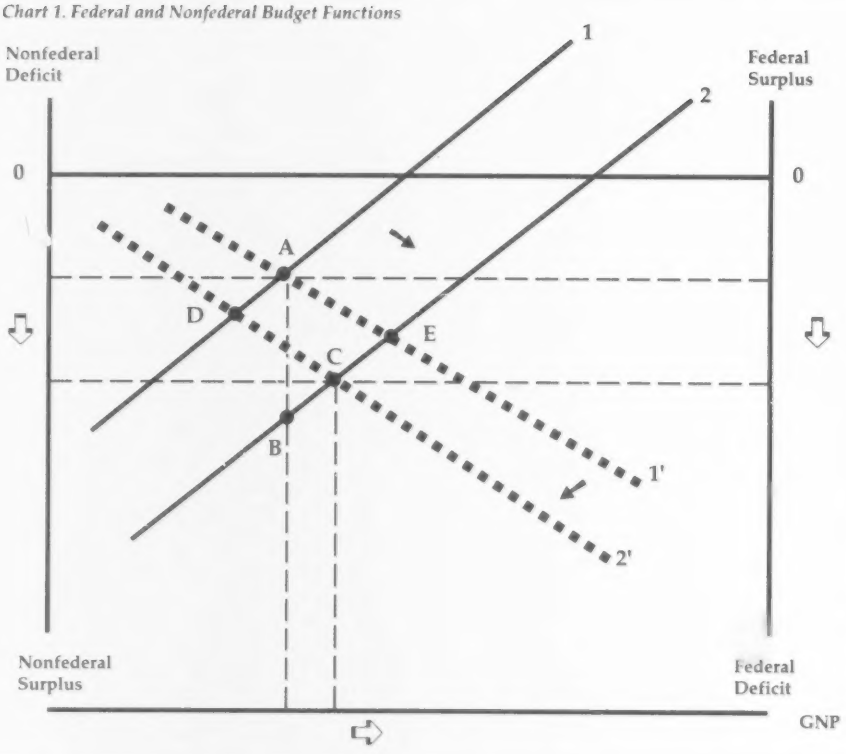
There are lots of things that we know very little about. For example, we know very little about the shape of the budget function relating to the sum of all other sectors of the economy. Presumably we could aggregate across the budget schedules of all sectors of the economy other than the federal government (households, businesses, state and local governments, and the foreign sector). This is not to say that we know nothing at all about these budget relationships; for, we know that, at all times, the sum of the surpluses or deficits of these sectors will just equal the deficit or surplus of the federal government. Consider the table listing the sectors of the economy, the receipts and expenditures of each sector, along with each sector's surplus or deficit in the fourth quarter of 1990. The federal deficit (on income and product account) was $184.3 billion. The offsetting surpluses were from the household sector, state and local governments, and the foreign sector. Although we do not know the shape of the nonfederal budget function, two are shown in Chart 1 as heavily dotted lines, increasing as GNP expands. (Do not be fooled by the fact that the lines are drawn moving to the lower right! The nonfederal scale is on the left side of the chart.) In words, the larger the GNP the more the aggregate nonfederal budget moves toward surplus.

It is often the unfortunate case that we must be careful with words. Several statements have been juxtaposed that could be confusing. It has just been asserted that the larger the GNP the more the federal budget moves toward surplus. It has also been stated that the larger the GNP the more the aggregate of the budget positions of the nonfederal sectors moves toward surplus. Finally, it has been stated that the federal deficit or surplus must be exactly matched by an aggregate nonfederal surplus or deficit. Within what context can all these statements make sense? The statements dealing with the shapes of the federal and nonfederal budget functions relate to a let's pretend, short-run, situation. We are saying,

"What would happen to the federal budget position if the level of GNP were somewhat higher, rather than somewhat lower?" As we turn to real time, looking at history it is clear that over the long run both GNP and the federal deficit have grown; there has also been a corresponding growth in the size of the nonfederal surplus.

During any period, GNP will be what it is. At that point (say, point A on Chart 1), the federal and nonfederal budget functions intersect. At that intersection, the federal deficit (shown on the right side of Chart 1) is just matched by the nonfederal surplus (shown on the left side of the chart).

Chart 1. Federal and Nonfederal Budget Functions



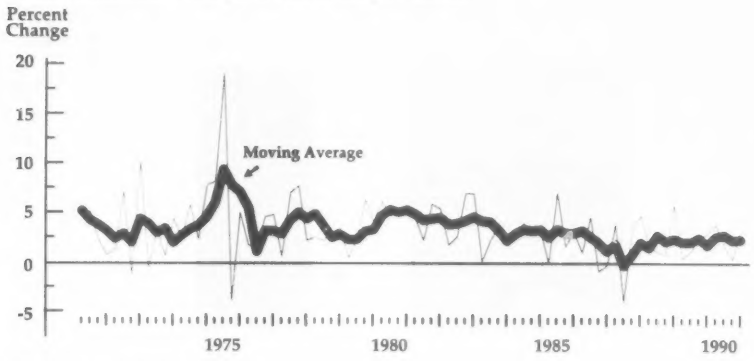
Now suppose there is some combination of an increase in federal expenditures and/or a cut in tax rates. Such an event is illustrated in Chart 1 by a shift to the right in the entire federal budget schedule, from line 1 to line 2. According to the new schedule (line 2), at any given level of GNP the federal government would be experiencing a larger budget deficit than previously (line 1). How should that change in fiscal policy be characterized?

One approach is to observe that the federal deficit has increased (see arrow on the right side of Chart 1), and to interpret the growth in the deficit as a measure of the shift in fiscal policy. Note that there is a new intersection at C of the federal budget schedule and the sum of the nonfederal budget schedules, at which point the federal deficit is just matched by an aggregate nonfederal surplus. But part of the increase in the deficit reflects a shift in the nonfederal budget function (from 1' to 2'). If the nonfederal schedule remained at 1', the intersection would have occurred at point E and the increase in the federal deficit would have been smaller. At the risk of being sidetracked by details, it is worth noting that marginal tax rates enter into the nonfederal budget function; while it is very likely to shift in response to tax rate changes, the shift will be smaller than the shift in the federal schedule. The aggregate of nonfederal schedules does not need to shift in response to expenditure-induced changes in the federal budget position.

Note that it would have been possible for the deficit to have decreased without a shift in fiscal policy. Suppose the fiscal schedule had remained at 1, but the nonfederal schedule shifted to 2'. Such a shift would reflect an attempt on the part of households and businesses to save more and spend less. If that had happened, the new intersection would have been at point D (see Chart 1). At that point, GNP would have been reduced, and the federal deficit would have risen.

Fiscal developments can be described as consisting of two components, one *autonomous* and the other *induced*. By autonomous, I refer to the shift in the federal fiscal position that would have occurred in the absence of a change in GNP. Returning to Chart 1, the autonomous component of the fiscal change consists of the change in the federal budget position from point A to point B. That aspect of the fiscal development is unrelated to developments in the nonfederal sectors. In the illustration, the nonfederal schedule shifted from 1'

Chart 2. Autonomous Changes in Federal Budget Position



* Shaded areas represent recessions.

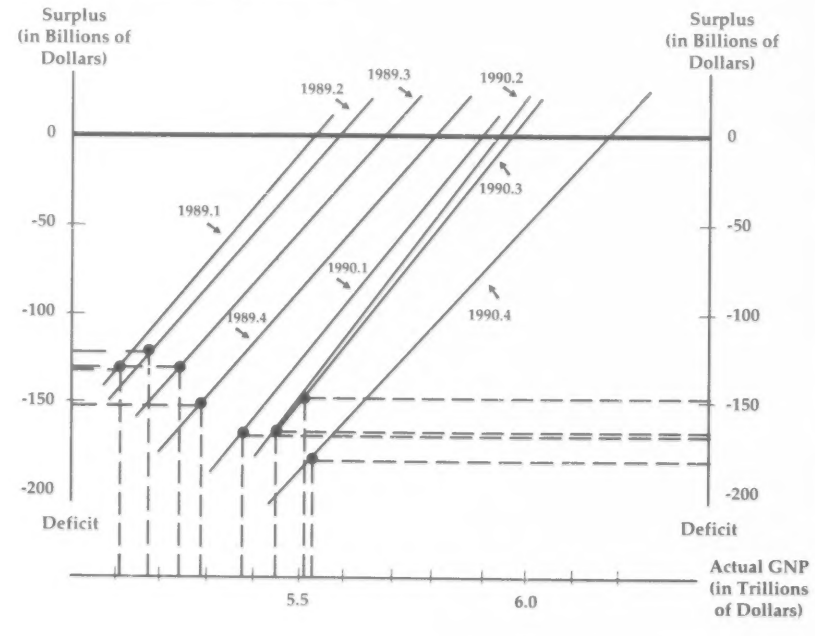
to 2'. By virtue of the change induced by the expansion in GNP, the federal fiscal position moved up the federal schedule from B to C. As Chart 1 illustrates, the size of the induced change in the federal deficit or surplus depends on the *position* of the nonfederal budget schedule and its slope.

Some History

There is inconclusive evidence that fiscal policy, as measured by autonomous changes in the budget, has been adjusted to maintain cyclical stability. Chart 2 shows autonomous quarter-to-quarter changes in the federal budget position, expressed as a percent of federal expenditures in the quarter from which the change occurred. The heavy line on the chart is a four-quarter moving average centered in the terminal month; the other line depicts the actual quarter-to-quarter percent changes. The four-period moving average is used in order to smooth the data. The shaded areas on the chart represent those periods during which actual GNP fell below where it would have been in the absence of downward cyclical swings in business activity. During such periods, the unshaded areas are those during which unemployment was 6 percent or less; unemployment was higher than 6 percent of the civilian work force.

In the period under consideration, from the first quarter of 1971 to the final quarter of 1990, there were 50 quarters during which the economy fell below its expansion path in the absence of cyclical deviations. There were 30 quarters during which the performance of the economy was sufficiently strong to reduce unemployment below 6 percent. An inspection of Chart 2 suggests some upward movement in autonomous changes in the federal budget position during the early quarters of cyclical weakness in the economy. Left to one's imagination is the question of whether those changes reflect conscious policy decisions or, instead, are more or less random. It turns out that autonomous changes in the federal budget were somewhat more rapid during shortfalls in the economy than during periods when the economy was performing more strongly. During periods of relative weakness, autonomous changes in the federal budget averaged 3.54 percent; autonomous changes during periods of relative strength averaged only 2.87 percent.

Chart 3. Shifts in Federal Budget Schedules



Recent Shifts in the Budget Schedule

It may be convenient to think of the federal budget schedule as shifting rightward quarter-after-quarter. Such shifts are shown in Chart 3 for eight quarters in 1989 and 1990. The specific explanation for each shift is beyond the scope of this article. In any event, it is probable that the schedule would shift to the right even in the absence of any new federal legislation, reflecting the growth of government associated with the underlying growth of the nation. New spending programs or tax cuts would accelerate the rightward movement. In view of the fact that we do not know the positions or slopes of the aggregate of the nonfederal budget schedules, we have left them off Chart 3. All we know is that they crossed the federal function at the points indicated.

Little imagination is required in order for the mind's eye to draw federal budget functions into 1991 and beyond. It is possible to believe that the aggregate of the nonfederal budget schedules is sloped downward, toward the lower right (as illustrated in Chart 1). It is also possible to imagine that the fluctuations of that function are more-or-less bounded by the experience shown on Chart 3. If such fanciful thought turned out to be more-or-less the case, a large and growing federal deficit is in prospect over the next several years.

The average shift in the budget functions shown on Chart 3 is $6.9 billion, with little change in the slope of successive functions. Suppose these shifts continue through 1991. A straight line fitted through the points shown on Chart 3 would cross these new federal budget functions at deficits of $181.1, $188.1, $195, and $201.9 billion, for an average deficit of $191.5 billion during the 1991 calendar year. If the straight line were fitted through the most favorable experience, the federal deficit for 1991 would average about $170 billion; in terms of least favorable experience, the deficit would average about $275 billion.

But turning away from fantasies about the unknowable future, there are lessons to be learned from this exercise. It is quite clear that the size of the federal deficit (or surplus), coupled with the simultaneously determined flow of GNP, are critically dependent upon the shape of and shifts in the aggregate of the nonfederal schedules. In a very real sense, the federal government can do little to affect the size of its deficit over the next several years. Too many of its programs are locked in place.

In order for the federal budget position to move toward surplus, it is necessary for the aggregate of budgets of households, businesses, state and local government, and the foreign sector to move toward deficits. Thus, households would need to spend an increased share of their income; or businesses would need to expand their expenditures on plant, equipment, or inventories; or state and local governments would need to accelerate their pace of expenditures; or the nation would need to export more aggressively than it imports. In the absence of some combination of these developments, the federal government will remain in substantial deficit.

Even as these words are written, I am conscious of the fact that some readers will rise up in horror. Aside from prescriptions relating to the foreign sector, it will appear that I am advocating profligacy. But quite the opposite is the case. With an expanding income, the absolute size of household saving could well be increased, not reduced. (After all, 6 percent of 80 is only 4.8; but 5 percent of 100 is 5.0.) And business investment is the stuff of enhanced productivity and growth.

In short, the set of factors that drives the federal budget toward surplus is the same as that moving the overall economy toward successful performance. A successfully performing economy is one in which the business sector is expanding. It may be investing in plant and equipment; it may be building business inventories in the expectation of rising sales. Within such a setting, it is likely that the business sector is expanding its workforce. At the same time, the household sector is likely to be confident of its ongoing and expected future situation. Consequently, households are likely to be consuming heavily, building up their holdings of durables, and otherwise enjoying life. States and local political subdivisions can be busily providing health, educational, and welfare services to their constituencies. Finally, the domestic economy may find itself being stimulated by strong demand from abroad. Of course, not all of these conditions need be present in an economy that is operating near noninflationary potential.

In short, a successfully performing economy is inextricably linked to a federal budget characterized by strong receipts. If this is so, public policy measures that are successful in moving the economy towards high standards of performance are very likely to be successful in moving the federal budget toward surplus. It is attractive to suppose that the federal government would be well advised to pay more attention to matters relating to economic performance than to matters explicitly designed to drive revenues higher. Indeed, it is plausible to argue that the approaches directed explicitly toward limiting the federal deficit are likely to be self-defeating. Thus, for example, it is not surprising that efforts to enhance revenue and to restrain federal expenditures have had, after the fact, little observable effect on the federal deficit. Such efforts tend to exert a dampening effect on the general economy, thereby driving the federal sector towards deficit.

Appendix

For those interested in technical details, this appendix explains how the federal budget function is estimated. In addition, relevant estimated values are shown for the 1970–1990 period. Suppose that the federal budget function is given by

$$Sf_t = a_{0,t} + a_{1,t}(GNP)_t,$$

where

- Sf = federal budget position (receipts minus expenditures),
- a_0 = intercept term (summary of all factors affecting federal receipts and outlays),
- a_1 = an average of marginal tax rates,
- GNP = gross national product, and
- t = denotes time period (by quarters).

There are monthly data giving two estimates of both GNP and the federal surplus (or deficit). One estimate is of the actual flows for these two variables; the other estimate is of the flows for each of these variables on a cyclically adjusted basis. By cyclically adjusted, there is the assumption that the economy operates at a pace such that 6 percent of the labor force is unemployed. For each quarter, we have two observations on each of the unknowns; as a happy consequence, in each quarter we are able to solve for each unknown.

Estimated quarterly values for a_0 are shown in Chart 1. Each of these values is negative, indicating that expenditures exceed revenues at the y-intercept. Moreover, the chart indicates that a_0 has generally drifted downward. Estimated average marginal tax rates, a_1, have followed no particular pattern for the 1970–1990 period considered as a whole (see Chart 2). The description of a_1 as a tax rate is a short-hand expression and is not intended to be misleading. Clearly, it is not the marginal tax rate on taxable income. Rather, it merely expresses a relationship between GNP and federal tax receipts.

The estimates of autonomous changes in the federal budget position during time period t, $Sf_{a,t}$, are computed as

$$Sf_{a,t} = (a_{0,t-1} - a_{0,base}) + GNP_{a,t}(a_{1,t} - a_{1,base}).$$

Chart 1. Autonomous Changes in Federal Budget Position (GNP=0)

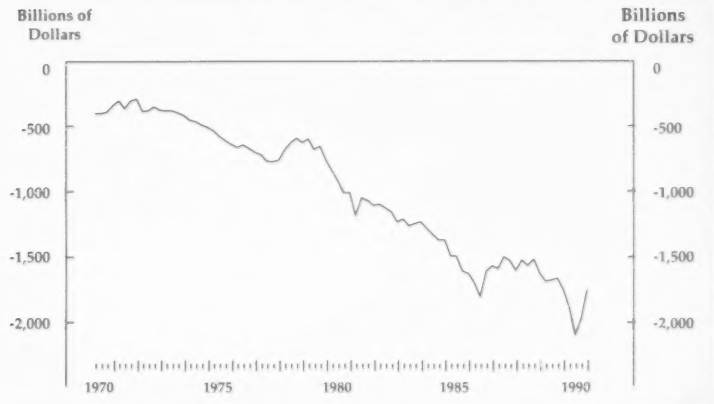


Chart 2. Marginal Net Tax Rate

Raymond K. Oldakowski and
Diane O'Rourke

Vacation Travel and Retirement Location

A recent study estimates that the State of Illinois lost over 1.2 billion dollars during the period of 1985–1990 due to the outmigration of retirees.[1] Only New York was harder hit than Illinois, with a net loss of nearly $2.9 billion.

Conversely, states benefiting the most from retirement migration include Florida (over $5 billion gained), and Arizona, Texas, North Carolina, Arkansas, Oregon, South Carolina, Nevada, Georgia, Washington, New Mexico, and California (over $1 billion gained by each). Even more staggering is the fact that these figures represent only losses and gains in income due to net migration, and do not include any indirect economic effects generated by changes in the spatial distribution of income (for example, jobs, housing starts, tax revenues).

Retirees are considered extremely desirable by local and state economies for many reasons. Most important, they often receive non-earned income in the form of pensions, assets, and Social Security; they put little or no negative pressure on the local employment market; and they spend a disproportionately large amount of their disposable income on goods and services (which in turn creates new jobs). In addition, tax dollars generated from the incoming retirees' income provide a boost to state and local governments. Some states had feared that an increase in the number of retirees would be accompanied by a significant increase in the demand for government social and supportive services. However, this fear has not been realized in most instances. Nearly 60 percent of retirees aged 55–64, and over half of all retirees, have income levels greater than twice the poverty level. Furthermore, if this increase in the need for government services were to occur, it could have an overall positive impact on local and state economies due to an increase in the demand for labor by the public sector. Given these facts, it would appear beneficial for states losing large numbers of retirees due to outmigration to examine ways to slow, stop, or reverse this trend.

Background

Recent research on the migration decision-making process may provide some valuable information to address the problem of retaining retirees. Three basic factors have been found to be central to the formation of migration intentions and the selection of a migration destination. These are an individual's (1) socioeconomic and demographic characteristics, (2) attachments to the place of residence, and (3) ties to and familiarity with other places. Socioeconomic and demographic characteristics encompass a wide variety of variables including age, life-cycle and career-cycle stage, marital status, education, income, and occupation. Each of these variables has a different effect on migration behavior. For example, mobility rates are inversely related to age; married couples are less likely to move than are single persons; and persons with higher levels of education and income are more likely to migrate than those with lower levels.

Attachments to place of residence include housing tenure, duration of residence, residential satisfaction, and membership in clubs or other organizations. Each of these variables serves to deter migration. For example, home owners are less likely to move than renters; persons who have lived in an area for a short period of time are more likely to move away than those who have lived there for a substantial duration.

Ties to other places represent exposure to different areas via previous residence, vacation travel, business trips, or the location of friends and relatives. These variables serve to stimulate migration. The more (positively) familiar a person is with another location, the more likely he or she is to move to that locale.

The purpose of this article is to examine the relationship between exposure to other places through vacation travel and locational retirement decisions (more specifically, the intention to move upon retirement and the selection of a desired location). Vacation travel has been found to be especially influential on retirement moves. Retirees, because they are no longer members of the labor force, are less responsive to employment considerations that often determine the migration decisions of labor force members. Moreover, researchers have found that exposure to other places plays an important role in explaining the migration intentions of individuals in the preretirement life-cycle stage (ages 50–64). This is partially due to the

This article is based on a study conducted by the Survey Research Laboratory under contract to the Illinois Department of Conservation Division of Planning. The authors wish to thank Ms. Marla Gursh, IDOC Division of Planning, for her assistance with this research.

[1] A list of references is available from the authors on request.

fact that older individuals often have developed attachments to a variety of places throughout their lifetimes. Other research has found that retired persons will often move to an area where they had visited friends and relatives in the past. The move is partially due to friends and relatives serving as information sources before retirement and also as a social support network after the move.

Methodology

The data for this study were obtained through a telephone survey of 1,011 adult Illinois residents conducted in November 1989 by the University of Illinois Survey Research Laboratory for the Illinois Department of Conservation. The main objective was to assess the outdoor recreation habits of Illinois residents while in Illinois and in other states. The authors added to the questionnaire to obtain a comprehensive inventory of vacation travel for the preceeding 12-month period. Information regarding the respondent's plans for retirement location were also ascertained.

Results

Survey participants were asked, "Have you thought at all about where you would like to retire?" Among the 1,011 respondents, 464 (45.9 percent) had not thought about where to retire, 371 (36.7 percent) had a retirement location in mind, and 176 (17.4 percent) had already retired. As one would expect, the likelihood that an individual has thought about a retirement location increases with age (Table 1). However, it is suprising to note how early in life this thought process begins. Among persons aged 34 and under, almost a third had already begun to think about where to retire. Among respondents aged 35–49, nearly half had a retirement location in mind.[2] These results suggest that many individuals may consider that decisions concerning the selection of a retirement location require the same advanced thought and planning as do decisions concerning other retirement goals such as financial security.

Table 1. Thinking About Retirement Locations by Age

	Thought About Where to Retire:		
	No	Yes	Already Retired
Age:*			
18-34	241 (64.4%)	124 (33.2%)	9 (2.4%)
35-49	142 (50.0%)	129 (45.7%)	12 (4.3%)
50-64	48 (26.5%)	92 (50.8%)	41 (22.7%)
65-89	18 (12.8%)	18 (12.8%)	105 (74.4%)

*Chi-square significant <.05

Persons who had thought about a retirement location were then asked, "Would you prefer to retire in the community where you now live or somewhere else?" Of those 371 respondents, 120 (32.3 percent) chose their current community, 241 (65.0 percent) wished to retire somewhere else, and 10 (2.7 percent) were uncertain.

Responses to this question were cross-classified with education, income, and race (Table 2). These results demonstrate some of the traditional generalizations that have been formulated concerning retirement migration. First, migration is a positively selective process. Persons with higher levels of education and income are more likely to move upon retirement than those with lower levels.[3] This is due, in part, to the fact that awareness of other places increases with one's level of education, and financial ability to move increases with income. This process of positive selectivity is especially important when examined within the context of the impact of retirement migration. Areas experiencing net inmigration will realize an increase in the number of wealthier, more educated retirees. Areas experiencing net out migration are left with a concentration of poorer, less educated retirees.

Table 2. Desired Retirement Location by Education, Income, Race, and Place of Residence

	Desired Retirement Location:	
	Current Community	Somewhere Else
Education:*		
Some High School	8 (42.1%)	11 (57.9%)
High School Graduate	48 (38.4%)	77 (61.6%)
Some College	28 (27.2%)	75 (72.8%)
College Graduate	36 (31.5%)	78 (68.5%)
Income:*		
Less Than $25,000	17 (44.7%)	21 (55.3%)
$40,000 - 59,999	18 (23.4%)	59 (76.6%)
Greater Than $60,000	26 (35.6%)	47 (64.4%)
Race:**		
White	90 (30.6%)	204 (69.4%)
Nonwhite	26 (44.1%)	33 (55.9%)
Place of Residence:**		
City of Chicago	32 (34.0%)	62 (66.0%)
Chicago Suburbs	26 (22.0%)	92 (78.0%)
Downstate	62 (41.6%)	87 (58.4%)

*Chi-square significant <.05

**Chi-square significant <.10

Second, whites are more likely to move upon retirement than nonwhites. Several possible explanations exist for this relationship. It has been hypothesized that perceived and actual racial discrimination serves to constrain migration intentions among nonwhites. In addition, larger extended families and geographically concentrated

[2]Similar results have been found in related research. A survey of 638 Champaign County residents conducted in the Spring of 1989 found that 45 percent of the respondents aged 35-49 had thought about where to retire.

[3]The results presented in Table 2 exhibit an interesting anomoly indicative of findings in previous studies of retirement migration, that is, the desire to move upon retirement actually decreases among the highest income and education groups. This is usually due to the fact that the wealthiest groups are more likely to have second homes in recreation/amenity areas; seasonal migration takes the place of a permanent retirement move.

residential patterns among nonwhites may already provide the social support networks often needed upon retirement, thus making a retirement move a less attractive option.

Responses were also disaggregated by place of residence within Illinois (Table 2). Downstate respondents were the least likely to want to leave their current communities upon retirement.[4] This is probably indicative of the prevalence of farmers and other property owners in this area of the state who have relatively stronger ties (including social, psychological, and financial attachments) to their current residence than other Illinoisans. The difference in the percentage of respondents wishing to move upon retirement between Chicago city and suburban residents most likely represents the differences in education, income, and race between the residents of these areas.

As mentioned previously, a complete inventory of the respondents' Illinois and out-of-state travel behavior was obtained. This inventory included trips for all reasons such as vactioning, visiting friends and relatives, enjoying the outdoors, and so on. Only business trips and trips with a duration of less than one night were excluded because of the potential for such travel to skew the results. A dichotomous variable indicating whether or not the respondent had traveled out-of-state in the past 12 months was created. When this variable is cross-classified with retirement location, it indicates that persons who traveled out-of-state were much more likely to want to move from their current residence upon retirement than those who did not travel out-of-state (Table 3). Further support for the existence of a relationship between vacation travel behavior and retirement location is evidenced by the fact that over 36 percent of the respondents providing a specific out-of-state retirement location had visited that place in the preceeding 12 months.

*Table 3. Desired Retirement Location by Vacation Travel **

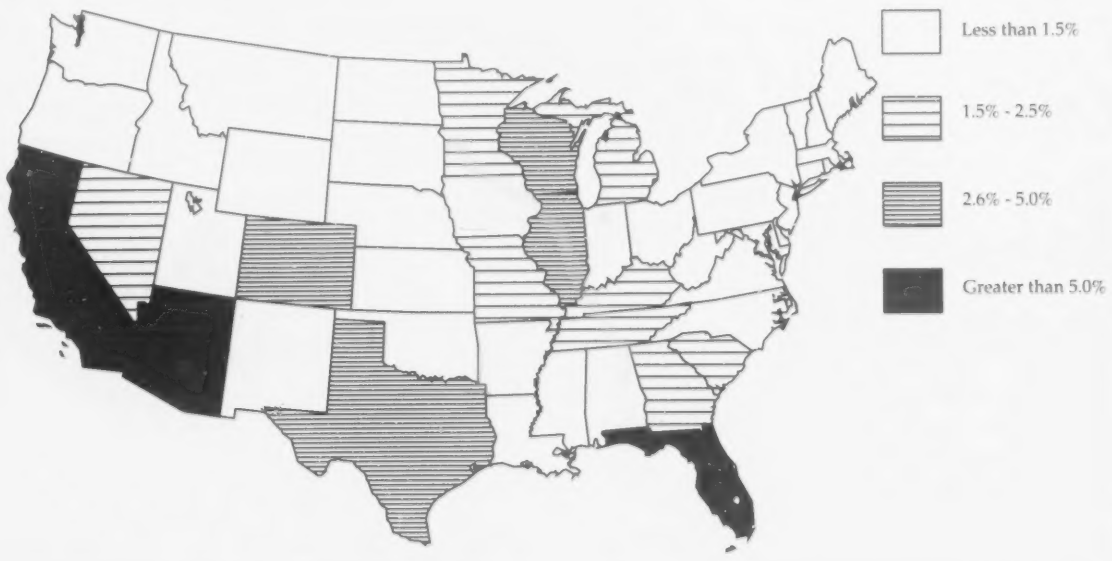
	Desired Retirement Location:	
	Current Community	Somewhere Else
Illinois Travel Only	42 (45.7%)	50 (54.3%)
Out-of-State Travel	78 (29.0%)	191 (71.0%)

*Chi-square significant <.05

The map presents the geographical distribution of those states most frequently mentioned by the respondents as desired retirement locations. Two basic spatial patterns emerge. The first is the influence of the Sunbelt states mentioned at the outset of this article that were gaining the greatest amounts of income due to retirement migration. These include Florida, Arizona, California, Texas, Nevada, South Carolina, and Georgia. The second is the influence

[4]Again, similar results have been found in previous research. The Champaign County Spring 1989 survey found that 41 percent of the respondents wished to retire in Champaign County, whereas 59 percent wished to retire elsewhere.

Desired Migration Destinations of Illinois Residents



of regional vacation destinations among Illinois residents. These states include Wisconsin, Illinois, Michigan, Missouri, Minnesota, Kentucky, and Tennessee.[5] Table 4 illustrates that Wisconsin, Michigan, and Missouri are overwhelmingly the most popular vacation spots among Illinoisans; Minnesota, Kentucky, and Tennessee are also frequently visited.

Finally, respondents were asked why they wanted to retire to the particular location they had in mind (Table 5). Illinoisans who wished to retire in their current community cited reasons such as the presence of friends and relatives, the positive characteristics of the community, and their length of residence in the area. These reasons are all representative of the attachments to place of residence that serve to deter out migration. Among Illinoisans who wished to leave their current community upon retirement, climate was the most frequently cited reason. However, an equally large number noted other positive characteristics of the desired migration destination.

*Table 4. Popular Vacation Destinations**

	Reported Number of Overnight Trips in Last 12 Months
Wisconsin	663
Michigan	262
Missouri	178
Florida	165
Indiana	115
California	89
Ohio	76
Colorado	66
Iowa	66
Minnesota	61
Kentucky	61
Tennessee	59

*As reported by 1,011 respondents

*Table 5. Reasons for Selecting Desired Retirement Location**

	Desired Retirement Location:	
	Current Community	Somewhere Else
Cost of Living	9	11
Climate	9	149
Friends and Relatives	70	47
Positive Characteristics of the Area	57	128
Length of Residence	28	n/a

*Respondents could provide more than one reason.

Policy Implications

The results of this survey provide some important information for the development of new policies and the extension of existing policies to prevent the loss of Illinois residents via retirement migration. First, the thought process concerning the selection of a retirement location appears to begin early in the adult life for many individuals. Hence, the promotion of Illinois as a "good place to live" after retirement should be directed toward all adult age groups, not only those nearing retirement age. Second, the loss of residents due to retirement migration is especially devastating because it involves not only raw numbers of population (which in itself is important), but also the loss of residents with relatively higher levels of income and education. Moreover, previous research has suggested that health status has a similar relationship with retirement migration, that is, healthier and more physically independent elderly are more likely to move upon retirement. Third, the relatively lower retirement migration rates among nonwhites indicate that racial discrimination may still influence the mobility decisions of Blacks, Hispanics, Asians, and other minorities. State officials must actively ensure that all Illinoisans are welcome as residents in all parts of the state (both in perception and actuality). Such policies might also make Illinois a more attractive retirement migration destination for out-of-state minorities. Fourth, the relatively higher rate of retirement outmigration among persons who travel out-of-state suggests that even more effort needs to be made to promote Illinois as an attractive vacation and travel area. This effort should be directed not only to attract residents of other states, but also to retain Illinois residents themselves. By redirecting the vacation travel of Illinoisans from neighboring states (for example, Wisconsin, Michigan, and Missouri) to within the boundaries of Illinois, residents will become more aware of the physical amenities and recreation opportunities available in Illinois. These characteristics are clearly important to individuals in making the decision of where to retire. In addition, more immediate benefits, such as an increase in revenue from tourism, could result.

Finally, whereas Illinois can do little to change its climate, it is apparent that other factors influence retirement destination selection. Physical amenities and recreational opportunities discovered through travel behavior are one such factor. Other studies have demonstrated the importance of characteristics such as shopping facilities, access to health care, availability of transportation, and cultural activities in influencing locational retirement decisions. State officials would be wise to promote the existing availability of such amenities in Illinois in comparison to the greater demand (but lesser supply) of such features in retirement boom states such as Florida and Arizona. Hopefully, innovative and aggressive policies based on information such as that revealed in this study will enable Illinois to join the list of states gaining income from retirement migration in the near future.

[5]Because the retirement location question dichotomized "the community where you now live" and "somewhere else," other parts of Illinois could be selected.

There is a view that recessions include processes that serve to dampen inflationary forces. Because there is likely to be a weakening in demand for their product, producers find it difficult to pass along price increases. The weakening in aggregate demand is associated with a growing number of unemployed consumers and others who feel that their jobs are threatened. Price developments during the recession that began in July 1990 are consistent with such a general interpretation.

Chart 1 shows that price increases for necessities such as food, shelter, and clothing eased following the beginning of the recession. Aside from the diminution in inflation, price fluctuations have moderated. The price gyrations that characterized the first part of 1990 have been notably absent in 1991.

Chart 2 suggests that inflation is more difficult to tame in some sectors of the economy than in others. The relative cost of health care rose precipitously until the first quarter of 1991. New car prices have risen sharply since 1990. Finally, the cost of public transportation fluctuated widely in response to changing expectations regarding fuel prices.

Chart 1. Annualized Changes in Selected Price Indexes (CPI-U)

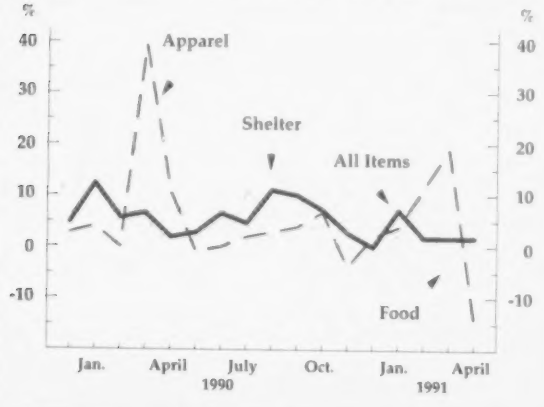
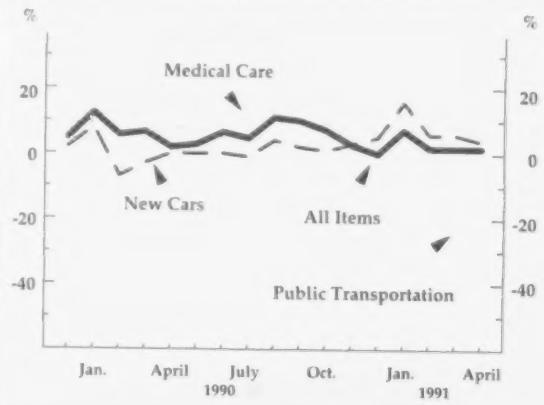


Chart 2. Annualized Changes in Selected Price Indexes (CPI-U)



Historical Statistics

	One Year % Change	April 1991	Mar. 1991	Feb. 1991	Jan. 1991	Dec. 1990	Nov. 1990	April 1990
Building permits (thousands)								
Residential housing units	-29.09%	2,625	2,394	1,138	0,760	1,524	2,350	3,702
Value of residential units	-16.25%	$290,207	$297,078	$125,916	$86,951	$180,466	$201,527	$346,504
Value of nonresidential housing								
Industrial buildings	-6.51%	17,353	15,646	4,646	16,904	21,666	14,379	18,562
Office, banks, and professional buildings	76.07%	37,021	15,139	31,597	116,876	27,649	27,510	21,265
Stores and other mercantile buildings	40.58%	39,039	29,030	22,445	7,284	52,593	56,155	27,770
Other	11.52%	6,468	7,282	2,673	4,301	9,210	6,630	5,809
Consumer price index (1982-1984=100)								
United States	4.89%	135.2	135.0	134.8	134.6	133.8	133.8	128.9
North Central US	4.53%	131.5	131.3	130.8	130.5	130.2	130.4	125.8
North Central/pop. more than 1,200,000	4.16%	132.6	132.7	132.0	131.7	131.5	131.7	127.3
North Central/pop.360,000 to 1,200,000	4.49%	130.4	130.3	130.1	129.5	129.0	128.9	124.8
North Central/pop. 50,000 to 360,000	5.49%	132.5	131.5	131.3	131.0	130.7	130.9	125.6
North Central/pop. less than 50,000	4.87%	127.0	126.2	125.6	126.0	125.7	126.2	121.1
Chicago	4.37%	136.1	136.2	135.5	135.1	134.6	134.2	130.4
St. Louis	NA	NA	130.7	NA	131.0	NA	130.4	NA

Forecast Statistics

Personal Income (millions of dollars, seasonally adjusted at annual rates)

	1990	1991:I*	1991:II	1991:III	1991:IV	1992:I	1992:II	1992:III	1992:IV	1993:I
Total personal income	$232,072	$240,526	$244,010	$247,946	$252,043	$256,172	$260,818	$265,068	$269,336	$273,646
Total nonfarm personal	168,764	173,778	176,122	178,855	181,930	184,876	188,442	191,444	194,607	197,641
Total private nonfarm	147,653	151,455	153,483	156,012	158,695	161,383	164,647	167,410	170,156	172,919
Mining	1,117	1,103	1,167	1,179	1,180	1,188	1,212	1,218	1,223	1,226
Construction	9,989	10,329	10,601	10,863	11,015	11,223	11,454	11,704	11,906	12,153
Manufacturing	34,126	34,068	33,653	33,707	33,985	34,314	34,872	35,123	35,354	35,530
Durable	20,777	20,607	20,245	20,259	20,485	20,738	21,226	21,409	21,587	21,703
Nondurable	13,348	13,461	13,408	13,449	13,501	13,575	13,647	13,714	13,767	13,827
Transp. & pub. utilities	12,420	12,568	12,686	12,884	13,114	13,303	13,518	13,662	13,836	14,024
Wholesale trade	13,405	13,782	14,072	14,355	14,584	14,833	15,129	15,382	15,616	15,889
Retail	14,546	14,902	15,028	15,287	15,565	15,701	16,064	16,329	16,607	16,774
Finance, ins. & real estate	14,942	15,257	15,579	15,808	16,039	16,294	16,496	16,730	16,965	17,225
Services	46,382	49,445	50,696	51,928	53,211	54,527	55,900	57,262	58,650	60,099
Government	21,111	22,323	22,639	22,843	23,235	23,493	23,795	24,034	24,451	24,722

Gross State Product (millions of dollars, seasonally adjusted at annual rates)

	1990**	1991:I	1991:II	1991:III	1991:IV	1992:I	1992:II	1992:III	1992:IV	1993:I
Total	$270,629	$278,236	[illegible]384	$284,761	$288,405	$291,972	$296,194	$299,864	$303,518	$306,987
Total private nonagricultural	241,427	248,663	251,545	254,635	257,972	261,239	265,108	268,472	271,821	275,003
Mining	1,885	1,902	1,995	2,019	2,023	2,049	2,111	2,134	2,158	2,180
Construction	11,225	11,627	11,840	12,035	12,207	12,370	12,590	12,801	12,993	13,178
Manufacturing	49,272	48,816	48,509	48,521	48,752	49,029	49,589	49,758	49,921	50,014
Durable	26,733	26,032	25,513	25,376	25,479	25,632	26,052	26,101	26,152	26,137
Nondurable	22,539	22,784	22,997	23,145	23,273	23,397	23,537	23,657	23,769	23,877
Transp. & pub. utilities	27,561	28,637	29,005	29,344	29,669	29,990	30,340	30,667	30,985	31,300
Wholesale trade	22,834	23,206	23,503	23,765	24,016	24,260	24,550	24,810	25,057	25,301
Retail trade	24,073	24,667	24,960	25,227	25,486	25,657	25,943	26,200	26,450	26,624
Finance, ins. & real estate	50,278	52,190	52,814	53,486	54,233	54,945	55,629	56,323	57,030	57,713
Services	54,299	57,618	58,918	60,239	61,586	62,940	64,357	65,779	67,228	68,694
Government	24,157	24,556	24,760	24,932	25,195	25,393	25,597	25,768	26,019	26,199
Agriculture	5,045	5,017	5,079	5,194	5,238	5,340	5,489	5,624	5,678	5,785

Illinois Employment Forecast (in thousands, seasonally adjusted)

	1990	1991:I	1991:II*	1991:III	1991:IV	1992:I	1992:II	1992:III	1992:IV	1993:I
Total nonfarm employment	5,263.8	5,267.3	5,221.0	5,212.1	5,224.7	5,240.4	5,245.8	5,257.3	5,266.6	5,292.6
Total private nonfarm emp.	4,501.7	4,504.0	4,459.4	4,452.7	4,467.5	4,487.0	4,494.1	4,500.1	4,511.5	4,541.8
Mining	19.8	19.8	19.9	19.6	19.5	20.1	19.8	19.6	19.7	20.2
Construction	218.4	219.1	211.3	208.2	205.7	206.0	200.6	199.2	198.6	202.5
Manufacturing	982.0	968.1	947.5	942.8	945.7	951.1	960.1	962.9	965.2	967.7
Durable	592.9	579.5	566.4	564.2	567.6	573.4	583.0	586.7	589.4	592.1
Primary metals	55.0	52.7	50.4	49.6	49.2	49.3	50.5	50.9	51.0	51.3
Fabricated metals	103.1	102.3	98.9	99.4	100.6	101.7	103.5	103.7	103.8	103.8
Nonelectrical machinery	153.3	150.9	148.0	146.4	147.1	148.4	151.6	152.4	152.7	152.4
Electrical machinery	115.8	113.0	114.4	116.6	119.6	123.0	126.4	129.1	131.5	134.3
Nondurable	389.2	388.6	381.2	378.5	378.1	377.7	377.1	376.2	375.8	375.6
Food & kindred products	93.3	93.1	91.3	90.2	89.9	89.2	88.1	86.8	86.2	86.0
Printing & publishing	111.5	111.1	108.6	107.2	106.0	105.0	104.7	104.8	104.6	104.5
Chemicals & allied prod.	63.2	63.4	63.1	63.1	63.4	63.4	63.4	63.2	63.3	63.1
Transportation & pub. utilities	307.8	309.0	305.3	304.2	303.9	305.1	307.1	307.0	306.2	307.4
Wholesale trade	357.8	357.7	357.5	357.7	359.1	361.2	360.4	360.9	361.9	364.6
Retail trade	900.4	903.1	893.1	893.5	897.8	899.2	902.8	905.0	906.0	911.4
Finance, ins. & real estate	375.5	373.9	372.7	371.0	371.4	370.2	367.6	365.2	365.3	364.2
Services	1,340.0	1,353.3	1,352.1	1,355.6	1,364.4	1,374.3	1,375.7	1,380.3	1,388.5	1,403.8
Government	762.2	763.3	761.6	759.4	757.2	753.4	751.7	757.2	755.1	750.8

*Forecast begins
**Includes a forecast figure for 1990:IV

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